Historical & Architectural Survey & Evaluation

Section 110 of the National Historic Preservation Act Compliance Project

Facilities of the Ames Laboratory
U.S. Department Of Energy

Iowa State University Campus

(Aerial image of the ISU campus looking southwest with Wilhelm Hall, Spedding Hall and Metals Development in view, ca.1960.)

Report Completed

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by

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1. PROJECT SUMMARY

1.1 Purpose Statement

An historical and architectural survey and evaluation of the built resources of the Ames Laboratory at Iowa State University in Ames, Iowa was conducted for the purpose of identifying the potential they (together and/or individually) hold for listing on the National Register of Historic Places. This project was initiated by the Ames Laboratory-U.S. Department of Energy (DOE) to comply with Section 110 of the National Historic Preservation Act of 1966, which mandates the identification and evaluation of potentially significant historic properties. The responsibility for action upon the recommendations rendered in this report falls to the Ames Laboratory and the DOE, with any action taken made in concurrence with the Iowa State Historic Preservation Office.

1.2 Statement of Findings

The survey and evaluation project specifically addressed thirteen buildings, each of which was reviewed at a reconnaissance level regardless of age or other issues such as obvious integrity concerns. All buildings were mapped, photographed and baseline research completed to create a current perspective of their appearance (design, construction materials, etc.), general condition (relative to historic integrity), and to make a preliminary determination regarding their potential for listing on the National Register of Historic Places. With the exception of Metals Development, the buildings that were constructed less than fifty years ago (post-1959), were determined not eligible for listing at this time, with recommendations made for re-evaluation of those buildings that appear to bear the potential for listing once they meet the fifty year age requirement established by the National Park Service for evaluation of historic resources.

Additional research and evaluation at an intensive level was conducted for those buildings that, through the process of the reconnaissance survey, were determined to bear the potential for listing on the National Register of Historic Places. Those buildings are: Spedding Hall, Wilhelm Hall, and Metals Development. Each of these three resources is closely linked to the research and development work of the Ames Laboratory and are considered eligible for listing on the National Register of Historic Places under Criterion A, which defines a property's quality of significance related its association with the broad patterns of our history. In addition to their significance under Criterion A, Wilhelm Hall and Spedding Hall also bear the potential for significance under Criterion B, which defines a property's quality of significance related to its association with a person or persons significant in our history, in this case, Harley Wilhelm and Frank Spedding. If prepared, a National Register nomination of Metals Development would require an additional argument made under Criterion Consideration G establishing the exceptional significance of the property that would merit listing of the building, which gained significance in the last fifty years and so falls outside the standard guideline for listing (although construction began on the building n 1959, it was not placed in service until 1961 leaving it a mere two years shy of the Secretary of the Interior's standard for historic significance.)

Iowa Site Inventory forms for each of the thirteen surveyed buildings are found in the report appendices – three (Spedding Hall, Wilhelm Hall, and Metals Development), completed at the intensive level and the remaining ten completed at the reconnaissance level. Per the guidelines of the Iowa State Historic Preservation Office each inventory provides a site and property description, a discussion of historic integrity, a property history narrative, a statement of significance and each includes the appropriate maps and images; where available, historic images are part of the inventory.

The following properties were evaluated, with findings for eligibility indicated. Please note that when building names have changed over time, they are referred to in the table and in the inventories by the name currently in use, (e.g. Metallurgy is commonly referred to as Wilhelm Hall and is referred by that name.)

Building	Built	Eligibility	Notes
Records Storage	1948	Not Eligible	
Mechanical Maintenance	1964	Not Eligible	Re-evaluate 2014
Warehouse	1966	Not Eligible	Re-evaluate 2016
Construction Storage	1967	Not Eligible	
Maintenance Shops	1967	Not Eligible	Re-evaluate 2017
Paint & AC	1968	Not Eligible	Re-evaluate 2018
Storage 1	1990	Not Eligible	
Storage 2	1991	Not Eligible	
Storage 3	unknown	Not Eligible	
TASF	1995	Not Eligible	Re-evaluate 2045
Metals Development	1961	Eligible	
Spedding Hall	1951	Eligible	
Wilhelm Hall	1949	Eligible	

RECOMMENDATIONS

The completion of National Register nominations for Spedding Hall, Wilhelm Hall, and Metals Development are recommended. Each of these buildings has a direct and relevant historic association with the work of the Ames Laboratory. The nominations should build on the work of the intensive level survey, with particular effort directed at clearly placing the research and development of the Lab within the context of the larger scientific community. Little contextual work currently exists in this area, but would be of great importance when building the case for the historic significance of these resources. This is particularly true if the case for significance at the national level is attempted.

Research conducted for National Register nominations should also expand on the lives, careers, and contributions of Frank H. Spedding and Harley Wilhelm. The work of the intensive level survey located many references to the role and accomplishments of Spedding (some of which are noted in the report and the relevant inventory), but much more should be done to present a full understanding of the man's contributions in the history of science. That includes the impact on the larger scientific community (including commercial

applications of research and discovery), the impact of his work on Iowa State University, and on the Ames Laboratory.

Less has been documented of Harley Wilhelm's long-time role and impact at Iowa State University, although his central part in the Manhattan Project is widely accepted. Research should seek to expand our understanding of Wilhelm's research contributions and the resulting impact.

As stated by the Department of the Interior, National Park Service, "the National Register of Historic Places is the official Federal list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture. These contribute to an understanding of the historical and cultural foundations of the Nation."[1] Wilhelm Hall, Spedding Hall, and Metals Development are resources that stand as physical evidence of the important contributions made by the Ames Laboratory and its scientists to the history of science. That work began with the Manhattan Project, and then transitioned to myriad investigations that led the Lab to be considered a "world center of rare earth research."[2]

2. STATEMENT OF SIGNIFICANCE

As the inventories generated from this survey and evaluation project indicate, the research and subsequent developments (e.g. inventions and writings) of the Ames Laboratory span sixty-plus years and represent numerous, significant achievements in the scientific world. Although perhaps most widely known for its work with uranium purification for the Manhattan Project, it was in the decades following the Second World War that the Ames Laboratory became known as a "world center of rare earth research."[3]

In light of the significant contributions made by the Ames Laboratory in the field of science, standing resources utilized by the Lab bear the potential for listing on the National Register of Historic Places in their association with those contributions.

2.1 Historic Background

The history of the Ames Laboratory is founded in activities that began soon after the 1939 discovery of nuclear fission. With that discovery, the United States government became interested in focusing a national research effort on the development of nuclear energy. As part of that effort, Frank H. Spedding was called upon to organize and direct a research and development program that would work in tandem with the Manhattan Project's physics program. Spedding, who was a specialist in the chemistry of rare earth metals and thus well suited to the assignment, was head of the physical chemistry department at, what was then, Iowa State College.[4]

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[1] U.S. Department of the Interior, *National Register Bulletin 16A: How to Complete the National Register Registration Form*, [Washington, D.C: Government Printing Office, 1991], i.

[2] *Profiles of Iowa State University History* [Ames, IA: Iowa State University, n.d.], 26.

[3] Ibid.

[4] Ames Laboratory Timeline, Ames Laboratory Website, http://external.ameslab.gov/60thanniversary.html (accessed February 2009).

Along with other university and industrial labs across the country, the group at Iowa State College in Ames began experimenting with better ways of producing uranium. Harley Wilhelm, a metallurgist with the Ames group, headed the team that developed a process for producing large ingots of high-grade uranium at a substantially reduced cost. The Ames group produced one-third of the uranium used in the "first successful self-sustaining chain reaction initiating the controlled release of nuclear energy." [5] The work of that period was primarily conducted in the basement of the Chemistry Building (now Gilman Hall) or in the building commonly referred to as "Little Ankeny" – named for the ordnance plant located in Ankeny, Iowa.[6]

Two million pounds of pure metallic uranium was produced for the Manhattan Project by the team at Ames from 1942 to 1946. Of that production, some 100 tons was utilized at the X-10 reactor in Oak Ridge and at the Y-12 site for a magnetic separation process. The remaining uranium was transported to Hanford, Washington for conversion to plutonium. The uranium production of this era was the first in numerous steps taken in the long path toward the development of nuclear power.[7]

After the war, Iowa State College, with its team of scientists, was chosen as one of seven laboratories in this country to continue the research of nuclear power begun with the Manhattan Project. The selection of the group at Ames had much to do with their accomplishments related to developing an expensive means of processing uranium in large amounts and their experienced research of atomic energy elements. Following that selection, the college established the Institute for Atomic Research in November of 1945. The institute was designated by the Atomic Energy Commission as the Ames Laboratory and formally dedicated as such on May 17, 1947. From that time the Institute for Atomic Research, with its administrative role, and the Ames Laboratory, the research facility, functioned under the control of the U.S. Atomic Energy Commission (later the U.S. Department of Energy.)[8]

With its creation, the Lab's purpose was "… to build up and maintain a strong group of scientists working in the fundamental sciences." At the October 1960 dedication of the Metals Development building, John A. McCone, Chairman of the U.S. Atomic Energy Commission (AEC) was asked why the AEC chose Ames to fulfill the Ames Laboratory contract and he responded that "… laboratories of this type are the lengthening shadow of the individual who has the unique and unusual capacity to search into the mysteries of the problems and also to attract as a magnet, men of dedication and skill to work with him. Many years ago, long before I had anything to do with this, the Office of Scientific Research found in Professor Spedding that man. That is why this laboratory is in Ames."[9]

Spedding became "an internationally recognized expert on the rare earth and related elements, initially pioneering the area of crystal field spectroscopy with these elements, eventually extending his contributions to all aspects of their chemistry, physics and

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[5] *Profiles of Iowa State University History* [Ames, IA: Iowa State University, n.d.], 89.

[6] Struss, Roland and Lesley Hawkins, *The Building of the Ames Laboratory* (Ames, IA: Ames Laboratory, 1986).

[7] Ibid.

[8] Ibid.

[9] Ames Laboratory Office of Public Affairs files.

metallurgy."[10] His research involving the separation of pure rare earth metals on a large scale led to the international use of the elements in both research and applied practices, leading to what has been described as "a revolution in the conceptual framework of the theory of magnetic materials."[11]

Under the direction of Dr. Spedding, the Ames Lab "aided and abetted ISU's reputation all over the world for its work in the physical sciences. [Spedding] brought eminent scientists to Ames and he sent his colleagues all over the world to spread the word that science par excellence was being done in Ames."[12] Although the Ames Laboratory's early history may be most intimately linked to the uranium program of the war years, the facility's research broadened over the ensuring years and became no less significant in the scientific world.

The construction of the Lab's first building, the Metallurgy Building (later Wilhelm Hall), began ca. 1947 and the building was placed in service in 1949. The Research Laboratory (aka Research Building and, later, Spedding Hall) was constructed and occupied by 1951. This pair became the physical center of the Ames Laboratory, with additional office and laboratory space located in the Institute for Atomic Research (also built in 1947-48 and now a University resource known as the Office and Laboratory Building) and in Gilman Hall (aka Chemistry Building, also owned by the University.)

During that era, Frank Spedding held a solid authority over both the Institute of Atomic Energy and the Ames Laboratory. Due to the linked interests and work of the Lab and the University, Spedding's influence spread into other University departments, particularly those conducting atomic research. Areas such as engineering, veterinary medicine, and agriculture became research divisions of the Lab, placing department heads in positions of authority within the Lab and research staff commonly crossed over from those departments into the Lab. This relationship worked to the advantage of both the Lab and the university as the available personnel garnered research funding, which in turn attracted new scientists to the university.[13]

Through the 1950s and 1960s the relationship between the Lab and the University was redefined as issues about ownership of the intellectual property were debated. However, the two institutions remained partners in research and continued to share assets. Through this time, the Lab's reputation continued to grow as its scientists moved into the research of materials relevant to nuclear power, including the production of the world's "purest rare-earth metals" through a process that significantly reduced the cost of materials. The process and the facilities in which it was developed became models for the large-scale production of rare-earth metals making them more available to the scientific community and resulting in the discovery of numerous practical applications and the subsequent growth of industry that utilized rare-earths.[14]

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[10] Robert S. Hansen, "Memorial Resolution for Frank Harold Spedding," May 14, 1985.

[11] Ibid.

[12] Craig Textor, "A 'Creampuff' realized," *Ames Tribune, December 27, 1984.*

[13] Ames Laboratory Timeline, (accessed February 2009).

[14] Ames Laboratory Office of Public Affairs files.

Under the continued influence of Frank Spedding and Harley Wilhelm, the scientists of the Ames Lab developed Iowa's first nuclear reactor, the Iowa State Teaching Reactor, which "went critical" on October 19, 1959. The Lab is also recognized for work in the area of fundament photosynthesis studies related to direct solar energy conversion and the development of a remote-controlled analysis system for use with hazardous waste (to name only two of many.)

The earliest indication that the Atomic Energy Commission (AEC) was considering the construction of another building for the Ames Laboratory came in 1951 when the Commission requested that land be leased from the university for the construction of the Metals Development building. It was not until the spring of 1959, however, that a lease was executed for that property. Shortly after, bids for the building's construction were let for the design executed by the Des Moines architecture firm of Tinsley, Higgins, Lighter & Lyon (the firm was also responsible for the design of the Metallurgy and Research Buildings); construction began that same year. The cornerstone for Metals Development was laid in October of 1960, with the building completed and in service in 1961.

According to the architectural firm's "Title I Report" that was submitted to the U.S. Atomic Energy Commission at Ames Laboratory on December 29, 1958, Metals Development would consist of three general areas: laboratory, pilot plant and shop areas.[15] The new building allowed for an expansion in research - work that required large spaces that could carry a heavy weight load. When completed, Metals Development accommodated the newly constructed, 9-kilowatt electron-beam melting furnace, "which melted samples of refractory metals into button or small ingot form." The new building also housed a 700-ton extrusion press that opened a new area of investigation involving the fabrication of new metal alloys.[16]

In 1967, the Laboratory was considered a center of rare earth research on the world-stage. The Lab operated with a budget of $9.6 million and a staff of nearly 1,000.[17] In 1974 the Ultra Carbon Corporation featured the Ames Laboratory in an issue of its in-house magazine "Arcs & Sparks." The article describes the widespread impact of the Lab, accomplished (in part) through the publication of some 3,250 scientific papers. The Lab's relationship with Iowa State University is also noted as a mechanism for meshing research with education. The article noted that about 340 graduate assistants had been on the payroll at one time, and some 838 students had earned their Ph.D. degrees under Ames Laboratory support.[18]

Frank Spedding died in 1984. In a post-humus memorial to his former colleague, Robert S. Hansen, then Director of the Ames Laboratory, wrote of the Lab's impact on Iowa State University, particularly in the areas of physics, chemistry, material sciences and engineering. Hansen attributed that impact largely to Spedding's vision of a facility "emphasizing basic research of a character suitable for faculty and graduate student participations, but sufficiently focused to have impact and relevance to problems likely to rise in future

[15] Spedding papers. University Special Collections.

[16] Ames Laboratory Timeline, (accessed February 2009).

[17] *Profiles of Iowa State University History*, 26.

[18] "Spectrochemistry Group Ames Laboratory, USAEC," *Arcs & Sparks* 19 [1974]: 11.

technologies." At the time of Spedding's death, the University had awarded 1153 Ph.D. degrees and 922 M.S. degrees based on thesis research conducted in the Ames Laboratory. [19]

Further measure of the Lab's success and acclaim can be taken with the following, much abbreviated list of its achievements.

- In 1944 the Ames scientists developed an ion exchange process used to separate rare earth elements in gram quantities, a feat not possible through previously known processes.

- The Ames Project received the Army/Navy E Flag for Excellence in Production on October 12, 1945, signifying two-and-a-half years of excellence in industrial production of metallic uranium as a vital war material. Iowa State is unique among educational institutions to have received this award for outstanding service, an honor normally given to industry.

- Frank Spedding becomes a member of the National Academy of Sciences in 1956. In 1967, Iowa State proudly claimed three out of the four Iowa scientists who at that time were National Academy Sciences members: Henry Gilman, Jay Lush, and Frank Spedding.

- In 1957 the Lab received the Chemical Engineering Achievement Award for research, development and efficient application of chemical engineering principles and processes in the recovery of rare earth metals.

- In 1959 members of Nikita Khrushchev's party visit Ames Lab during Khrushchev's visit to Iowa State University.

- In 1961 Spedding receives Iowa's Distinguished Citizen's Award from Governor Erbe.

- In 1967 Spedding was one of three to receive the Atomic Energy Commission Citation for outstanding service in the nation's atomic energy program.

- In 1985 the Ames Laboratory was honored by the American Nuclear Society with the Nuclear Historic Landmark award, which recognizes facilities where outstanding physical accomplishments took place for the Lab's work in uranium purification.

- Harley Wilhelm's research alone led to forty-four inventions.

This historic background overview is only that – the start of placing the historic resources of the Ames Lab within the larger historical context from which its significance is measured. Still, this small view into the work of the Ames Laboratory makes the importance of its contributions to the scientific community undeniable and the buildings associated with that work worthy of recognition for their ability to contribute to our understanding of those contributions.

[19] Hansen.

2.2 Eligible Resource Summary

As part of the present project, additional research and evaluation was conducted on Spedding Hall, Wilhelm Hall and Metals Development, which, through the process of the reconnaissance survey, were determined to bear the potential for listing on the National Register of Historic Places, warranting further scrutiny. Each of the three resources is closely linked to the research and development work of the Ames Laboratory and are considered eligible for listing on the National Register of Historic Places under Criterion A, which defines a property's quality of significance related its association with the broad patterns of our history. In addition to their significance under Criterion A, Wilhelm Hall and Spedding Hall also bear the potential for significance under Criterion B, which defines a property's quality of significance related to its association with a person or persons significant in our history, in this case, Harley Wilhelm and Frank Spedding. If prepared, a National Register nomination of Metals Development would require an additional argument made under Criterion Consideration G establishing the exceptional significance of the property that would merit listing of the building, which gained significance in the last fifty years.

2.2.1 *Wilhelm Hall (Metallurgy) - 1949*

Wilhelm Hall is considered eligible for listing on the National Register of Historic Places under Criterion A in its association with the history of science. The building is considered significant at the local and state level, although it is believed that additional research and contextual development may support a case for national significance.

Wilhelm Hall is the first (extant) building associated with the research and development done by the Ames Laboratory spanning over fifty years. Although the research for which the Lab is most commonly associated, that of uranium production and purification related to the Manhattan Project, occurred prior to the construction of Wilhelm Hall, the building represents the work of the Lab as a whole. In addition, scientific research in the areas of nuclear energy and rare earth metals, first developed during the Manhattan Project era, continued to be the centerpiece at the Ames Lab for many years. Indeed, many important scientific advancements grew out of the discoveries of that period and that work is directly associated with Wilhelm Hall.

Wilhelm Hall is also considered eligible for listing on the National Register of Historic Places under Criterion B in association with Harley Wilhelm, who is credited with heading the team that developed the process for producing large ingots of high-grade uranium at a substantially reduced cost and subsequently contributing one-third of the uranium used in the "first successful self-sustaining chain reaction initiating the controlled release of nuclear energy." Wilhelm continued research for the Ames Laboratory for forty-three years, having served as associate director from 1947-1966, and the work there cannot be separated from his influence.

Wilhelm Hall retains a high level of all seven aspects of historic integrity. The building remains on its original location and retains its historic association with other university buildings, most significantly with Spedding Hall (an Ames Laboratory building) to the west and Metals Development to the northwest.

The building's design and materials integrity is particularly high. Despite the replacement of the historic windows, the remaining design elements and their associated materials stand intact with no major alterations. The building's interior retains its historic floor plan, (although written records indicate that alteration of interior spaces were made to accommodate changing space requirements, those alterations appear to have been limited to equipment changes as little evidence of structural alteration is apparent.) Certainly, character-defining features, including those specific to the primary entry space and to the overall finish materials (which are indicative of the building's scientific research function and which visually connect it to both Spedding Hall and Metals Development), remain intact. The retention of materials and the continued functionality of spaces also speak to the integrity of workmanship.

The high level of integrity relating to location, design, setting, materials, workmanship, and association all result in a high level of integrity of feeling, as together, these aspects assure that those who enter the building experience its historic nature.

2.2.2 *Spedding Hall (Research Building) - 1951*

Spedding Hall is considered eligible for listing on the National Register of Historic Places under Criterion A in its association with the history of science. The building is considered significant at the local and state level, although it is believed that additional research and contextual development may support a case for national significance.

Spedding Hall is a primary building associated with the work of the Ames Laboratory spanning over fifty years. Although the research for which the Lab is most commonly associated, that of uranium production and purification related to the Manhattan Project, occurred prior to the construction of Spedding Hall, the building represents the work of the Lab as a whole. In addition, scientific research in the areas of nuclear energy and rare earth metals continued after the Manhattan Project era. Indeed, many important scientific advancements grew out of the discoveries of that period and that work is directly associated with Spedding Hall. The construction of the building represents the growth of the continued work of the Ames Lab and the resulting need for additional research space.

Spedding Hall is also considered eligible for listing on the National Register of Historic Places under Criterion B in association with Frank Spedding, who served as the first director of both the Ames Laboratory facility at the Iowa State College and the Institute for Atomic Research and as a senior scientist. Spedding's credentials as a scientist have been credited with the involvement of Iowa State College in the Manhattan Project, the subsequent development of the Ames Laboratory and the eventual establishment of the office Ames Laboratory. Spedding headed the Ames Lab for twenty-five years and the work there cannot be separated from his influence.

Spedding Hall retains a high level of all seven aspects of historic integrity. The building remains on its original location, although its historic setting is somewhat altered by the attachment of the TASF on the south. Despite the physical connection of TASF, Spedding Hall retains a sense of autonomy. It also retains its historic association with other university

buildings, most significantly with Wilhelm Hall to the east and, although a later construction, Metals Development to the north.

The building's design and materials integrity is particularly high, with no major alteration of the building's façade. The building's interior retains its historic floor plan. Although written records indicate that alteration of interior spaces were made to accommodate changing spatial requirements, those alterations appear to have been limited to equipment changes as little evidence of structural alteration is apparent. Certainly, character-defining features, including those specific to the primary entry space and to the overall finish materials (which are indicative of the building's scientific research function and which visually connect it to both Wilhelm Hall and Metals Development), remain intact. The retention of materials and the continued functionality of spaces also speaks to the integrity of workmanship.

The high level of integrity relating to location, design, setting, materials, workmanship, and association all result in a high level of integrity of feeling, as together, these aspects assure that those who enter the building experience its historic nature.

2.2.3 *Metals Development - 1961*

Metals Development is considered eligible for listing on the National Register of Historic Places under Criterion A in its association with the history of science. The building is considered significant at the local and state level, although it is believed that additional research and contextual development may support a case for national significance.

Metals Development is a primary building associated with the work of the Ames Laboratory spanning nearly fifty years. Although the research for which the Lab is most commonly associated, that of uranium production and purification related to the Manhattan Project, occurred prior to the construction of Metals Development, the building represents the work of the Lab as a whole. In addition, scientific research in the areas of nuclear energy and rare earth metals continued after the Manhattan Project era. Indeed, many important scientific advancements grew out of the discoveries of that period and that work is directly associated with Metal Development, particularly those areas of investigation which drove the construction of the building and dictated its design.

Metals Development is subject to Criterion Consideration G, which allows for the consideration of a property "achieving significance within the past 50 years if it is of exceptional importance." Due to the significance of the work of the Ames Laboratory and the direct correlation of the research conducted in the Metals Development building to that work, the property bears consideration for listing on the National Register of Historic Places prior to reaching the standard fifty-year threshold.

Metals Development retains a high level of all seven aspects of historic integrity. The building remains on its original location and it retains its historic association with other university buildings, most significantly with Ames Laboratory buildings, Spedding Hall and Wilhelm Hall, both located south across Pammel Drive.

The building's design and materials integrity is particularly high, with no major alteration of the building's façade. Although additions have been made to the building, the first is near

the fifty-year window for consideration as "historic" and the function of that space is consistent with the function of the building as a whole. Although written records indicate that alteration of interior spaces were made to accommodate changing spatial requirements, those alterations do not appear to detract from the building's historic integrity. Rather the changes support the adaptability necessary to accommodate the advancements in research central to the building's function. Certainly, character-defining features, including those specific to the primary entry space and to the overall finish materials (which are indicative of the building's scientific research function), remain intact. The retention of materials and the continued functionality of spaces also speak to the integrity of workmanship.

The high level of integrity relating to location, design, setting, materials, workmanship, and association all result in a high level of integrity of feeling, as together, these aspects assure that those who enter the building experience its historic nature.

3. SUMMARY

The research and subsequent developments of the Ames Laboratory span sixty-plus years and represent numerous, significant achievements in the scientific world. Following its work with uranium purification for the Manhattan Project, the Ames group of scientists evolved into a formally organized and funded entity that straddled the realms of Iowa State University and the Atomic Energy Commission (later, the Dept. of Energy) to become world-renowned in the field of rare-earth metals. The Lab's myriad contributions in the history of science are significant and the buildings associated with that work bear the potential for listing on the National Register of Historic Places through that association.

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5. APPENDIX A: Intensive Level Iowa Site Inventory Forms

- 5.1 Wilhelm Hall (Metallurgy)
- 5.2 Spedding Hall (Research Building)
- 5.3 Metals Development

Site Inventory Form

State Historical Society of Iowa
(November 2005)

State Inventory No. _____ ☒ New ☐ Supplemental
☐ Part of a district with known boundaries (enter inventory no.) _____
Relationship: ☐ Contributing ☐ Noncontributing
☐ Contributes to a potential district with yet unknown boundaries
National Register Status:(any that apply) ☐ Listed ☐ De-listed ☐ NHL ☐ DOE
9-Digit SHPO Review & Compliance (R&C) Number _____
☐ Non-Extant (enter year) _____

1. Name of Property

historic name Metallurgy Building

other names/site number Wilhelm Hall

2. Location

street & number Pammel Drive
city or town Ames ☐ vicinity, county Story
Legal Description: (If Rural) Township Name Township No. Range No. Section Quarter of Quarter
Washington 93N 24W 04 __ __
(If Urban) Subdivision _____ Block(s) _____ Lot(s) _____

3. State/Federal Agency Certification [*Skip this Section*]

4. National Park Service Certification [*Skip this Section*]

5. Classification

Category of Property (Check only one box)
☒ building(s)
☐ district
☐ site
☐ structure
☐ object

Number of Resources within Property

If Non-Eligible Property Enter number of:		*If Eligible Property, enter number of:* Contributing	Noncontributing
__	buildings	1	__ buildings
__	sites	__	__ sites
__	structures	__	__ structures
__	objects	__	__ objects
__	Total	1	__ Total

Name of related project report or multiple property study (Enter "N/A" if the property is not part of a multiple property examination).
Title *Historical Architectural Data Base Number*
N/A _____

6. Function or Use

Historic Functions (Enter categories from instructions)
05B03 EDUCATION; offices
05D EDUCATION; research
_____

Current Functions (Enter categories from instructions)
05B03 EDUCATION; offices
05D EDUCATION; research
_____

7. Description

Architectural Classification (Enter categories from instructions)
06C 20TH CENTURY REVIVAL; Classical Revival
_____
_____
_____

Materials (Enter categories from instructions)
foundation 10B CONCRETE; poured
walls (visible material) 03 BRICK
roof _____
other _____

Narrative Description (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" representing your opinion of eligibility after applying relevant National Register criteria)

☒ Yes ☐ No ☐ More Research Recommended	A	Property is associated with significant events.
☒ Yes ☐ No ☐ More Research Recommended	B	Property is associated with the lives of significant persons.
☐ Yes ☒ No ☐ More Research Recommended	C	Property has distinctive architectural characteristics.
☐ Yes ☒ No ☐ More Research Recommended	D	Property yields significant information in archaeology or history.

County Story Address Pammel Drive Site Number
City Ames District Number

Criteria Considerations

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B Removed from its original location.
- ☐ C A birthplace or grave.
- ☐ D A cemetery
- ☐ E A reconstructed building, object, or structure.
- ☐ F A commemorative property.
- ☐ G Less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

28 SCIENCE

Significant Dates

Construction date
1949 ☐ check if circa or estimated date
Other dates, including renovation

Significant Person
(Complete if National Register Criterion B is marked above)
Harley Wilhelm

Architect/Builder
Architect
Tinsley, Higgins & Lighter
Builder
James Thompson & Sons

Narrative Statement of Significance (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

9. Major Bibliographical References

Bibliography ☐ See continuation sheet for citations of the books, articles, and other sources used in preparing this form

10. Geographic Data

UTM References *(OPTIONAL)*

	Zone	*Easting*	*Northing*		*Zone*	*Easting*	*Northing*
1	15	446411	4653333	2			
3				4			

☐ See continuation sheet for additional UTM references or comments

11. Form Prepared By

name/title Alexa McDowell, Architectural Historian
organization AKAY Consulting date 02-15-09
street & number 1226 6th Street telephone 515-491-5432
city or town Boone state IA zip code 50036

ADDITIONAL DOCUMENTATION **(Submit the following items with the completed form)**

FOR ALL PROPERTIES

1. ***Map:*** showing the property's location in a town/city or township.
2. ***Site plan:*** showing position of buildings and structures on the site in relation to public road(s).
3. ***Photographs:*** representative black and white photos. If the photos are taken as part of a survey for which the Society is to be curator of the negatives or color slides, a photo/catalog sheet needs to be included with the negatives/slides and the following needs to be provided below on this particular inventory site:

Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____

☐ See continuation sheet or attached *photo & slide catalog sheet* for list of photo roll or slide entries.
☐ Photos/illustrations without negatives are also in this site inventory file.

FOR CERTAIN KINDS OF PROPERTIES, INCLUDE THE FOLLOWING AS WELL

1. ***Farmstead & District:*** (List of structures and buildings, known or estimated year built, and contributing or noncontributing status)
2. ***Barn:***
   a. A sketch of the frame/truss configuration in the form of drawing a typical middle bent of the barn.
   b. A photograph of the loft showing the frame configuration along one side.
   c. A sketch floor plan of the interior space arrangements along with the barn's exterior dimensions in feet.

State Historic Preservation Office (SHPO) Use Only Below This Line

Concur with above survey opinion on National Register eligibility: ☐ *Yes* ☐ *No* ☐ *More Research Recommended*
☐ *This is a locally designated property or part of a locally designated district.*

Comments: _____

Evaluated by (name/title): _____ *Date:* _____

Metallurgy Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

2. Location, cont'd.

Iowa State University Campus, Ames, Story County, Iowa.

5. Classification, cont'd.

Wilhelm Hall (the common name will be used throughout) is considered a building and counts as one resource.

7. Description

Site Description

Wilhelm Hall is sited on the south side of Pammel Drive, in the northwest section of the Iowa State University campus. Pammel is a major east-west roadway, which provides access to many of the major university buildings on that end of the campus. Wilhelm Hall is set back from the street, with a shallow front lawn, sidewalk and narrow parking strip separating it from the street. A walkway connects the sidewalk to the building's primary entrance on the north. Ames Laboratory buildings, Spedding Hall, TASF, and Metals Development, are located immediately west and northwest.

Property Description

Wilhelm Hall is a three-story brick construction on a poured concrete foundation. The rectangular building is simple in form and decorative devices, relying on a modernization of classical precedents in its stylistic expression. The classical influence is seen in the use of a raised podium, a highly symmetrical façade, and a hierarchical entrance. The use of a traditional red brick is in keeping with the American translation of the Classical Revival style. In Wilhelm Hall the classical precedent is modernized by the highly restrained use of applied ornament, the large expanses of flat wall surface, the lack of window trim, the use of concrete (or stone) detailing on the raised foundation, cornice level, and to call out the primary entrance.

A sense of classical drama is created at the primary entrance, which is accessed via a set of wide stairs with flanking piers that rise to an exterior landing. The entrance itself is accentuated by a projecting pavilion – a section of the building stepped out from the main wall plain and rising higher than the building. Within the projecting pavilion, further drama comes from a heavy door surround (into which the building's historic name, Metallurgy, is inscribed) and a pair of stone panels depicting scientific innovations related to atomic energy in bas-relief. Once inside the building, the staircase continues to the building's first level, through a set of steel doors and into the main building. Unlike Spedding Hall, the entry of Wilhelm is spare and lacking drama.

In plan Wilhelm Hall is a simple rectangle. The interior space on each of the floors is defined by a major corridor running east-west through the length of the building. Offices and laboratories in a variety of sizes line the corridor. A service space that accommodates an elevator shaft and a staircase occupies the central core of the building. Secondary staircases are located at both ends of the building.

Metallurgy Building	Story
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7. Description, cont'd.

The interior finishes of Wilhelm Hall are typical throughout the building and are nearly identical to those found in Spedding Hall (1951) and Metals Development (1961). Clearly the choice of materials had everything to do with the nature of the buildings' function – scientific research. Interior walls are constructed of structural tile with a glazed face. The buff-colored, glazed tile walls are found in hallways, offices and laboratory spaces and have a contrasting course of tile at baseboard level. The building's floors are polished, crushed rock (terrazzo). Although the historic flooring remains intact in the hallways, the laboratories have tile floors. Ceilings in the hallways are dropped to accommodate HVAC systems, but remain exposed in the offices and laboratories.

The building's windows are oversized, allowing a great deal of light into the interior spaces. Although window openings remain intact, the original windows themselves have been replaced and are presently heavily tinted.

Integrity Considerations

Wilhelm Hall retains a high level of all seven aspects of historic integrity. The building remains on its original location and it retains its historic association with other university buildings, most significantly with Spedding Hall (an Ames Laboratory building) to the west and Metals Development to the northwest.

The building's design and materials integrity is particularly high. Despite the replacement of the historic windows, the remaining design elements and their associated materials stand intact with no major alterations. The building's interior retains its historic floor plan. Although written records indicate that alteration of interior spaces were made to accommodate changing space requirements, those alterations appear to have been limited to equipment changes as little evidence of structural alteration is apparent. Certainly, character-defining features, including those specific to the primary entry space and to the overall finish materials (which are indicative of the building's scientific research function and which visually connect it to both Spedding Hall and Metals Development), remain intact. The retention of materials and the continued functionality of spaces also speaks to the integrity of workmanship.

The high level of integrity relating to location, design, setting, materials, workmanship, and association all result in a high level of integrity of feeling, as together, these aspects assure that those who enter the building experience its historic nature.

Metallurgy Building	Story
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7. Description, cont'd.

Property History

Wilhelm Hall (Metallurgy) was constructed in 1949 as the first building of the Ames Laboratory, which two years previously had been officially established by the Atomic Energy Commission. The facility's purpose was to build on the research efforts begun in tandem with the Manhattan Project during the war years.

The history of the Ames Laboratory begins soon after the 1939 discovery of nuclear fission. With that discovery, the United States government became interested in focusing a national research effort on the development of nuclear energy. As part of that effort, Frank H. Spedding was called upon to organize and direct a research and development program that would work in tandem with the Manhattan Project's physics program. Spedding, who was a specialist in the chemistry of rare earth metals and thus well suited to the assignment, was head of the physical chemistry department as what was then Iowa State College.

Along with other university and industrial labs across the country, the group at Ames began experimenting with better ways of producing uranium. Harley Wilhelm, a metallurgist with the Ames group, headed the team that developed a process for producing large ingots of high-grade uranium at a substantially reduced cost. The Ames group produced one-third of the uranium used in the "first successful self-sustaining chain reaction initiating the controlled release of nuclear energy."

Having proved that a chain reaction could be self-sustained and controlled, the demand for pure uranium rose dramatically and the Ames group worked to help meet that demand. The work involved continual refinement of the enrichment process, including both the melting and casting of uranium; the process they developed remains in use today. In total, the Ames group produced more than 2 million pounds of uranium for the Manhattan Project, playing a significant role in the outcome of World War II.

The Atomic Energy Commission (AEC) officially established the Ames Laboratory on May 17, 1947. The Lab's purpose was "… to build up and maintain a strong group of scientists working in the fundamental sciences." At the October 1960 dedication of the Metals Development building, John A. McCone, Chairman of the U.S. Atomic Energy Commission was asked why the AEC chose Ames to fulfill the Ames Laboratory contract and he responded that "… laboratories of this type are the lengthening shadow of the individual who has the unique and unusual capacity to search into the mysteries of the problems and also to attract as a magnet, men of dedication and skill to work with him. Many years ago, long before I had anything to do with this, the Office of Scientific Research found in Professor Spedding that man. That is why this laboratory is in Ames." (Ames Lab – Public Affairs)

But long before the construction of Metals Development came the Lab's first building, the Metallurgy Building (later Wilhelm Hall), which was occupied in 1949. The Research Laboratory (aka Research Building and, later, Spedding Hall) was constructed and occupied by 1951. This pair became the

Metallurgy Building	Story
Name of Property	County
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7. Description, cont'd.

physical center of the Ames Laboratory, with additional office and laboratory space located in the Institute for Atomic Research (also built in 1947-48 and now known as the Office and Laboratory Building) and Gilman Hall.

Wilhelm Hall was designed by Tinsley, Higgins & Lighter with James Thompson & Sons acting as the contractor. Tinsley, Higgins & Lighter was a Des Moines architecture firm, which, from (1948-1967), designed a total of six buildings for the Ames Laboratory, including Spedding Hall and Metals Development. The firm was known by various names during the course of its existence, with its founding partner, Vernon F. Tinsley, a former student at Iowa State College. (Day)

Vernon Tinsley was Iowa-born and worked intermittently at the well-known Iowa firm of Proudfoot, Bird & Rawson. He died in 1976. Burdette Higgins was born in Des Moines, Iowa. Like Tinsley (and many others), Higgins worked for Proudfoot, Bird & Rawson. He attended Drake University and Harvard's School of Architecture. He joined the firm of Tinsley & McBroom in 1929. His son, Tom G. Higgins, succeeded him in the firm. Clyde W. Lighter was also Iowa-born. He received his architecture degree at the University of Minnesota after transferring there from the University of Iowa. He worked in Minnesota after graduation, but returned to his home state to work for Tinsley, McBroom & Higgins in 1938. He became a partner in the firm in 1945. Lighter died in 1984. (Shank)

The firm is responsible for the design of the following buildings on the Iowa State University Campus. (Shank: 165)

Building	Date	Notes
Computer Garage (Records Storage)	1948	Tinsley, Higgins & Lighter
Synchrotron Building	1948-1949	Tinsley, Higgins & Lighter
Metallurgy Building (Wilhelm Hall)	1947-1949	Tinsley, Higgins & Lighter
Research Building (Spedding Hall)	1949-1951	Tinsley, Higgins & Lighter
Women's Gymnasium	1940-1941	Tinsley, McBroom & Higgins
Warehouse & Shop	1965-1966	Tinsley, Higgins, Lighter & Lyon
Maintenance Shop	1966-1967	Tinsley, Higgins, Lighter & Lyon
Metals Development	1966-1967	Tinsley, Higgins, Lighter & Lyon

Other designs by the firm include: (Shank: 165)

Building	Location	Date	Notes
Ames High School (City Hall)	Ames	1938	Tinsley, McBroom & Higgins
Des Moines Bankers Life Insurance Bldg.	Des Moines	1939	Tinsley, McBroom & Higgins
Robert Foster House	Ottumwa	1933	Tinsley, McBroom & Higgins
Dr. W.C. Newell House	Ottumwa	1933	Tinsley, McBroom & Higgins
United Benefit Life Office Bldg.	Omaha, NE	1942	Tinsley, McBroom & Higgins

Metallurgy Building	Story
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7. Description, cont'd.

The contract for construction of Wilhelm Hall (Metallurgy) was awarded in July of 1947. The project was funded by the Atomic Energy Commission (AEC) to be constructed on land leased from the Iowa State College. The building's cornerstone was laid at a special ceremony on May 14, 1948 and the building occupied in 1949. In 1985 the building was renamed to honor Harley Wilhelm for his significant contribution to the advancements made by the Ames Laboratory. Wilhelm came to Iowa State College (later Iowa State University) in 1927 as a graduate assistant in chemistry. The following year he became an instructor in physical chemistry, becoming head of the graduate research program in metallurgical science in 1938.

Harley Wilhelm was recruited to the the uranium project by Dr. Spedding in February of 1942. It was under Wilhelm's direction that a small group of scientists "developed a technique for producing and casting pure uranium metal" – a process that remains in use. ("50th Anniversery of the Manhattan Project") During the years of his association with the Lab and University, Wilhelm's metals research led to 44 inventions. (http://www.iowastatedaily.com/articles/1995/10/11/import/19951011-archive19.prt)

Although the Ames Laboratory's early history may be most intimately linked to the uranium program of the war years, the facility's research broadened over the ensuring years and became no less significant in the scientific world. Under the continued influence of Frank Spedding and Harley Wilhelm, the scientists of the Ames Lab directed their efforts in a variety of areas including the development of Iowa's first nuclear reactor, the Iowa State Teaching Reactor, which "went critical" on October 19, 1959.

Today, Ames' mission focus is on materials science, engineering, analytical instrumentation and chemical sciences that provides expertise to the Department of Energy (DOE) laboratory system in the areas of energy and environmental improvement. Ames' core capabilities are in Condensed Matter Physics and Materials Science, Chemical and Molecular Science and Applied Materials Science and Engineering; included in these is the computational support needed to carry out its mission. Ames operates the Materials Preparation Center (MPC), an Office of Science Specialized Research Center, which provides capabilities in preparation, purification, fabrication and characterization of materials in support of R&D programs throughout the world. Ames also collaborates with the DOE's applied energy technology, fossil energy and nonproliferation programs.

A measure of the Lab's success and acclaim can be taken with the following, much-abbreviated list of its achievements.

> The Ames Project received the Army/Navy E Flag for Excellence in Production on October 12, 1945, signifying two-and-a-half years of excellence in industrial production of metallic uranium as a vital war material. Iowa State is unique among educational institutions to have received this award for outstanding service, an honor normally given to industry.
>
> Spedding becomes a member of the National Academy of Sciences in 1956. In 1967, Iowa State proudly claimed three out of the four Iowa scientists who at that time were National Academy Sciences members: Henry Gilman, Jay Lush, and Frank Spedding.

Metallurgy Building	Story
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7. Description, cont'd.

In 1957 the Lab received the Chemical Engineering Achievement Award for research, development and efficient application of chemical engineering principles and processes in the recovery of rare earth metals.

In 1959 members of Nikita Khrushchev's party visit Ames Lab during Khrushchev's visit to Iowa State University.

In 1961 Spedding receives Iowa's Distinguished Citizen's Award from Governor Erbe.

In 1967 Spedding was one of three to receive the Atomic Energy Commission Citation for outstanding service in the nation's atomic energy program.

8. Statement of Significance

Wilhelm Hall is considered eligible for listing on the National Register of Historic Places under Criterion A in its association with the history of science. The building is considered significant at the local and state level, although it is believed that additional research and contextual development may support a case for national significance.

Wilhelm Hall is the first (extant) building associated with the research and development done by the Ames Laboratory spanning over fifty years. Although the research for which the Lab is most commonly associated, that of uranium production and purification related to the Manhattan Project, occurred prior to the construction of Wilhelm Hall, the building represents the work of the Lab as a whole. In addition, scientific research in the areas of nuclear energy and rare earth metals continued after the Manhattan Project era. Indeed, much appears to have grown out of the discoveries of that period and that work is directly associated with Wilhelm Hall.

Wilhelm Hall is also considered eligible for listing on the National Register of Historic Places under Criterion B in association with Harley Wilhelm, who is credited with heading the team that developed the process for producing large ingots of high-grade uranium at a substantially reduced cost and subsequently contributing one-third of the uranium used in the "first successful self-sustaining chain reaction initiating the controlled release of nuclear energy." Wilhelm continued research for the Ames Laboratory for forty-three years, having served as associate director from 1947-1966, and the work there cannot be separated from his influence.

Metallurgy Building	Story
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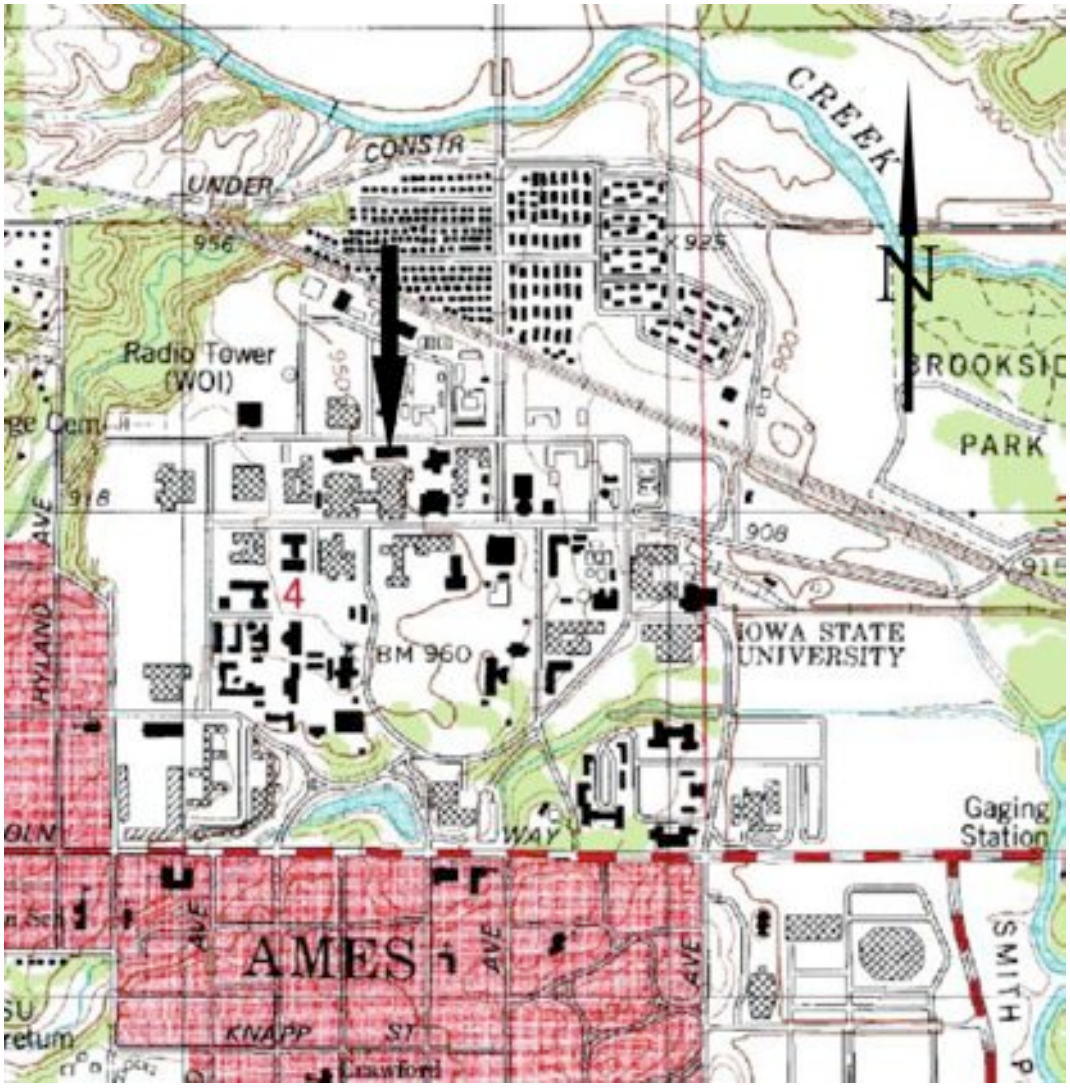
11. Additional Documentation – Maps

USGS 7.5 MINUTE TOPOGRAPHIC MAP – AMES QUAD (1993)



(MAP SOURCE: www.terraserver.com)

The arrow indicates the location of Wilhelm Hall.

Metallurgy Building	Story
Name of Property	County
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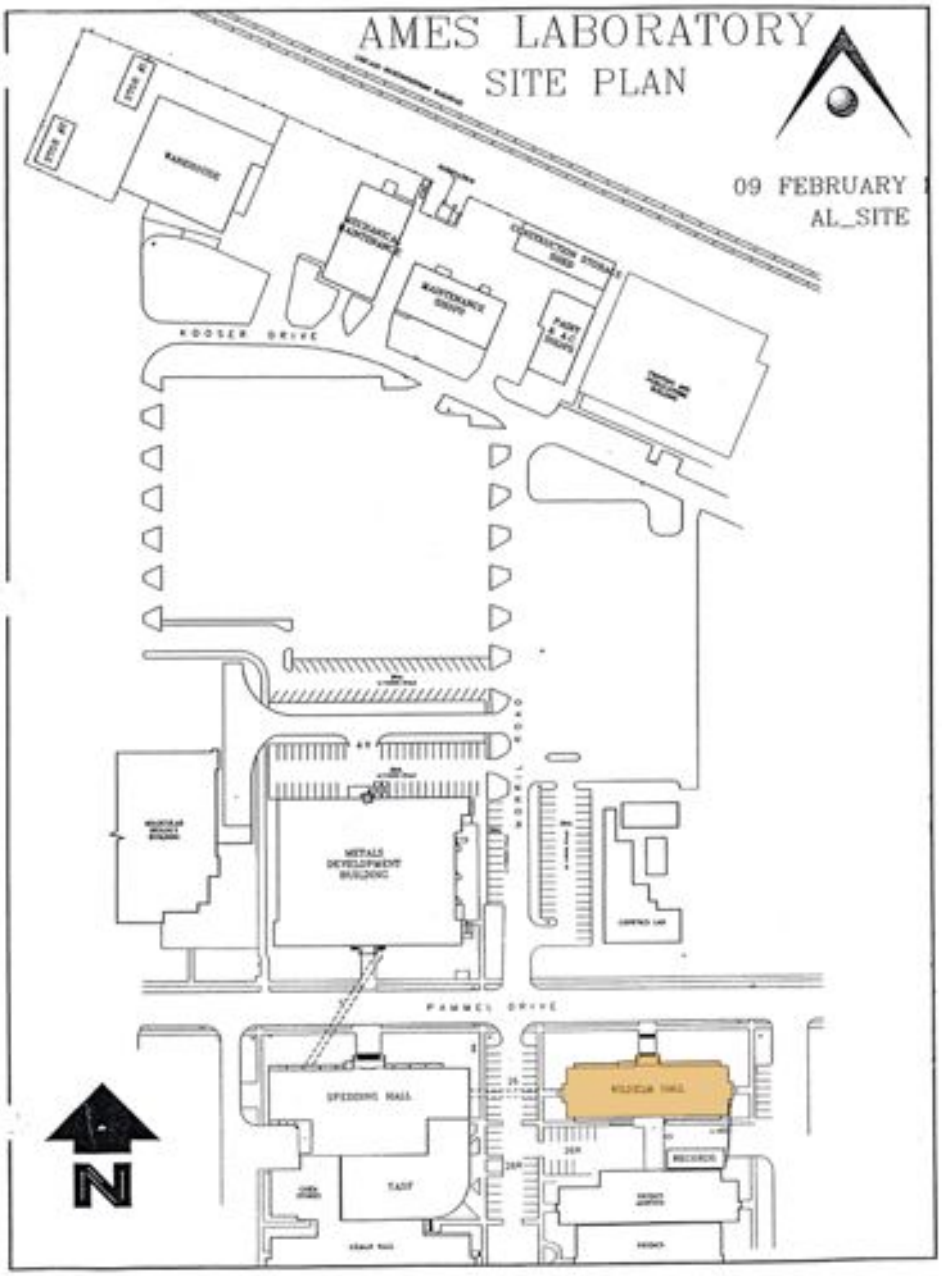
11. Additional Documentation – Maps

SITE MAP



(MAP SOURCE: Ames Laboratory – Facility Services – ca. 2007)

Metallurgy Building	Story
Name of Property	County
Pammel Drive	Ames
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The orange shading indicates the location of Wilhelm Hall.

11. Additional Documentation – Photographs

View of Wilhelm Hall, looking southeast across Pammel Drive.

(All images by AKAY Consulting – January 22, 2009 or February 25, 2009)

Metallurgy Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of Wilhelm Hall, looking southwest across Pammel Drive.

Metallurgy Building	Story
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Address	City

11. Additional Documentation - Photographs

View of the building's primary (north) entrance. Note that the building's historic name "Metallurgy" marks the entrance. The bas-relief panels surmounting the projecting pavilion depicts scientific innovations related to atomic energy.

Metallurgy Building	Story
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11. Additional Documentation – Photographs

View of the interior of the building's primary (north) entrance.

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11. Additional Documentation – Photographs

View of the basement hallway. Like Spedding Hall and Metals Development, the interior spaces of Wilhelm Hall are visually defined by the smooth, clean lines of the glazed tile walls. Steel doors are also typical of each building as is the design practice of dropped ceilings in the hallways to allow for the placement of the necessary systems (e.g. electrical, heating ductwork.) Historically, the floors throughout Wilhelm are covered in terrazzo with a contrasting edge. Although some historic flooring was replaced due to damage, that in the hallways remains intact.

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11. Additional Documentation – Photographs

Detail view of the historic flooring.

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11. Additional Documentation – Photographs

Interior view of a typical upper story hallway. The basic elements of the hallways are consistent from floor to floor.

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11. Additional Documentation – Photographs

View of a typical lab space. Note the continued use of glazed tile walls, the ceiling height with exposed structural members, the contemporary windows (though openings are not permanently altered), and the contemporary flooring.

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11. Additional Documentation – Photographs

View of the stairwell at the west end of the building. Note the curved bulkhead and the continued use of glazed tile walls.

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11. Additional Documentation – Photographs

The building's historic security system, the "watch station" remains in use. The system requires that a watchman insert and turn a key, timed to a specific schedule to indicate that the required surveillance round had been completed.

Metallurgy Building	Story
Name of Property	County
Pammel Drive	Ames
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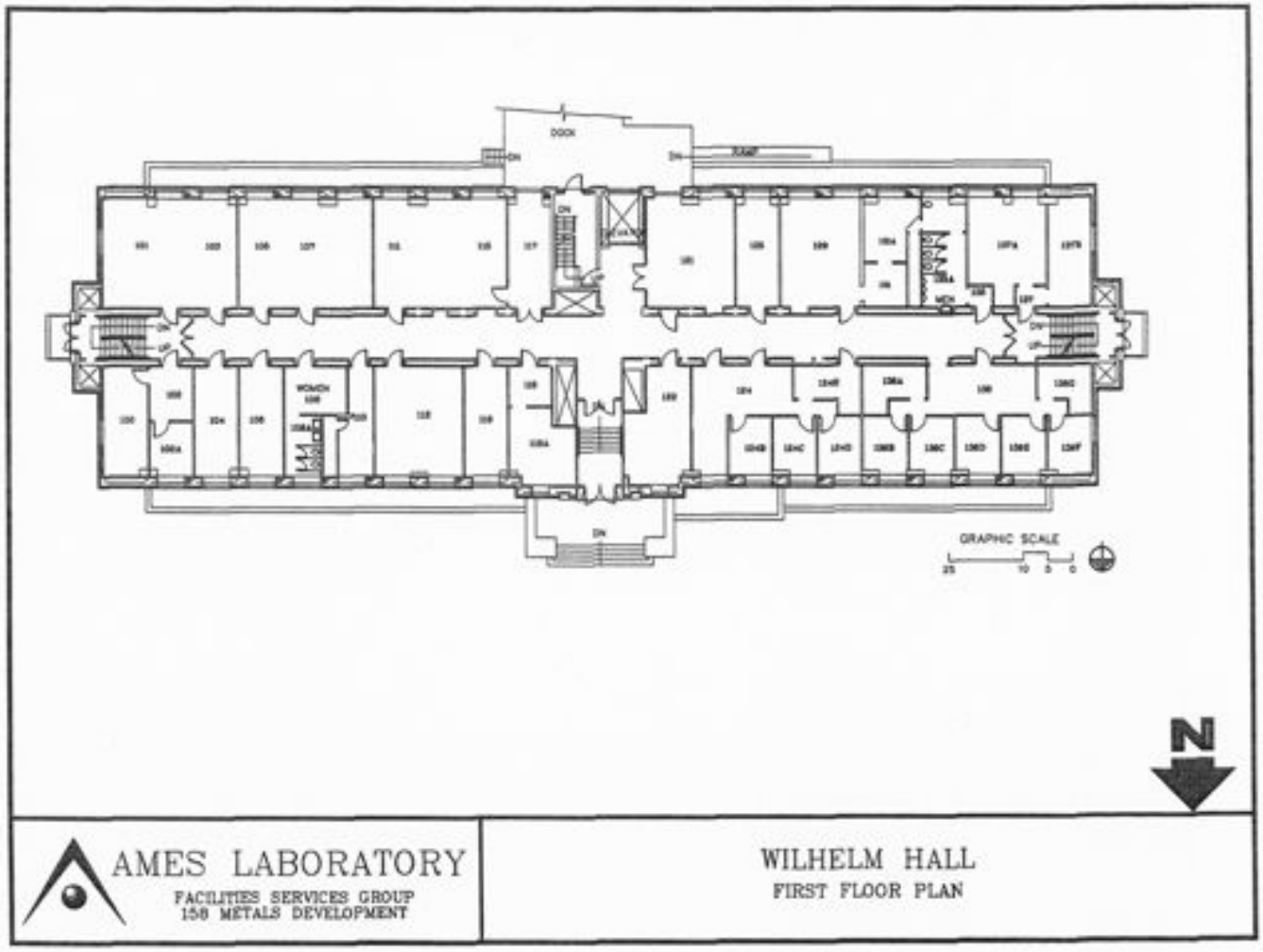
11. Additional Documentation – Plans – ca. 2007

FIRST FLOOR PLAN



(MAP SOURCE: Ames Laboratory Files – Facilities Services)

Metallurgy Building	Story
Name of Property	County
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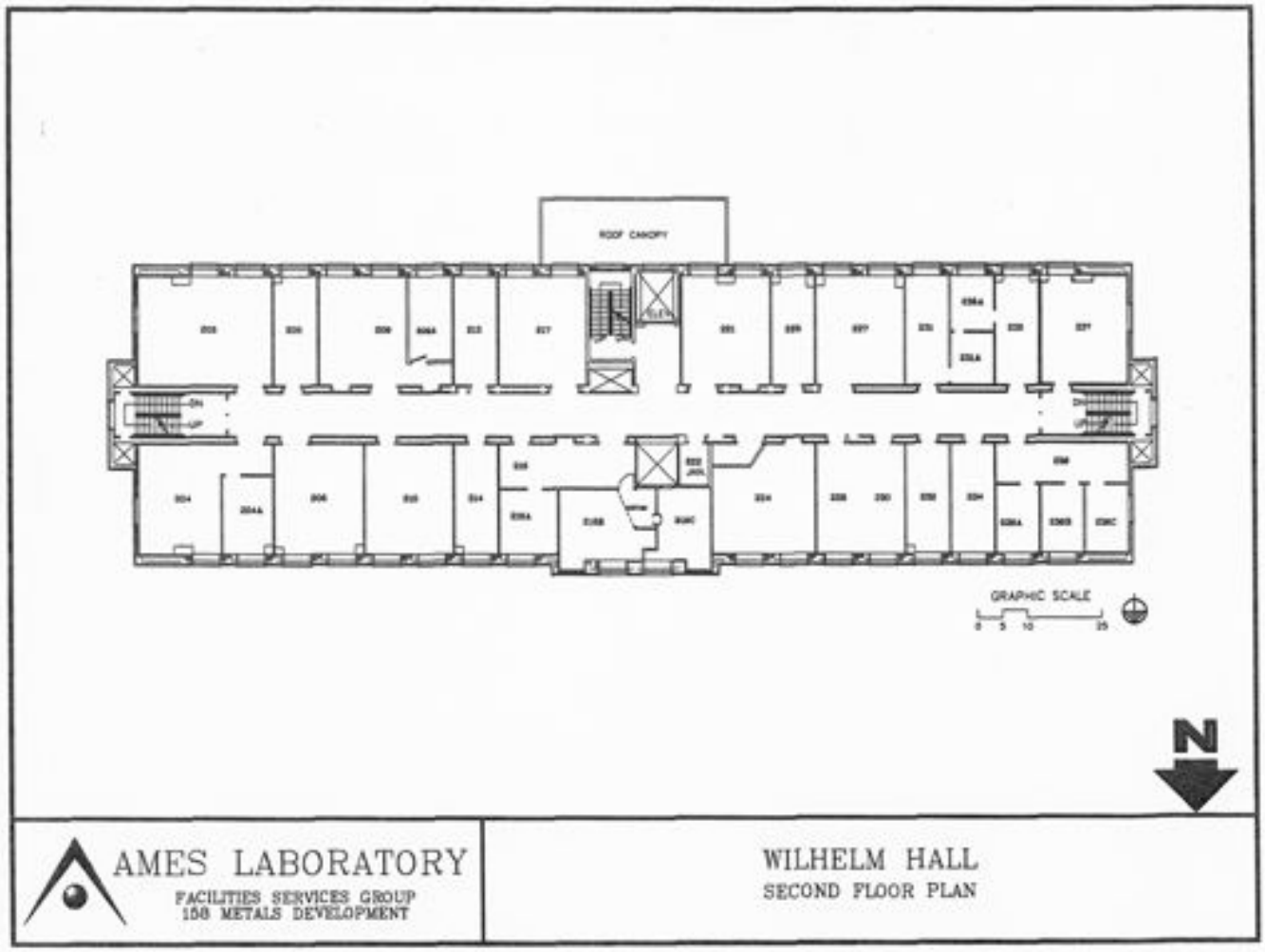
11. Additional Documentation – Plans – ca. 2007

SECOND FLOOR PLAN



(MAP SOURCE: Ames Laboratory Files – Facilities Services)

Metallurgy Building	Story
Name of Property	County
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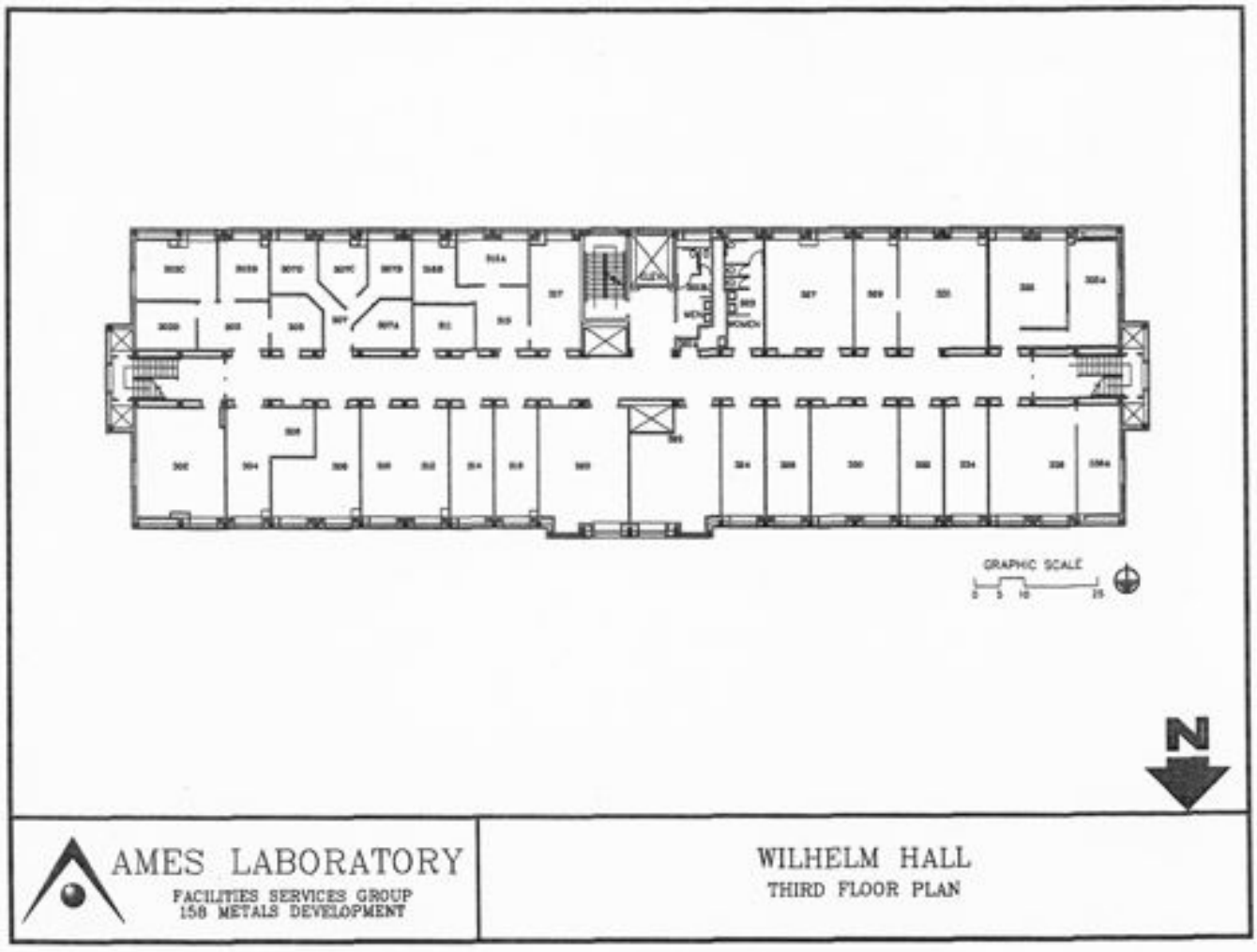
11. Additional Documentation – Plans – ca. 2007

THIRD FLOOR PLAN



(MAP SOURCE: Ames Laboratory Files – Facilities Services)

Metallurgy Building	Story
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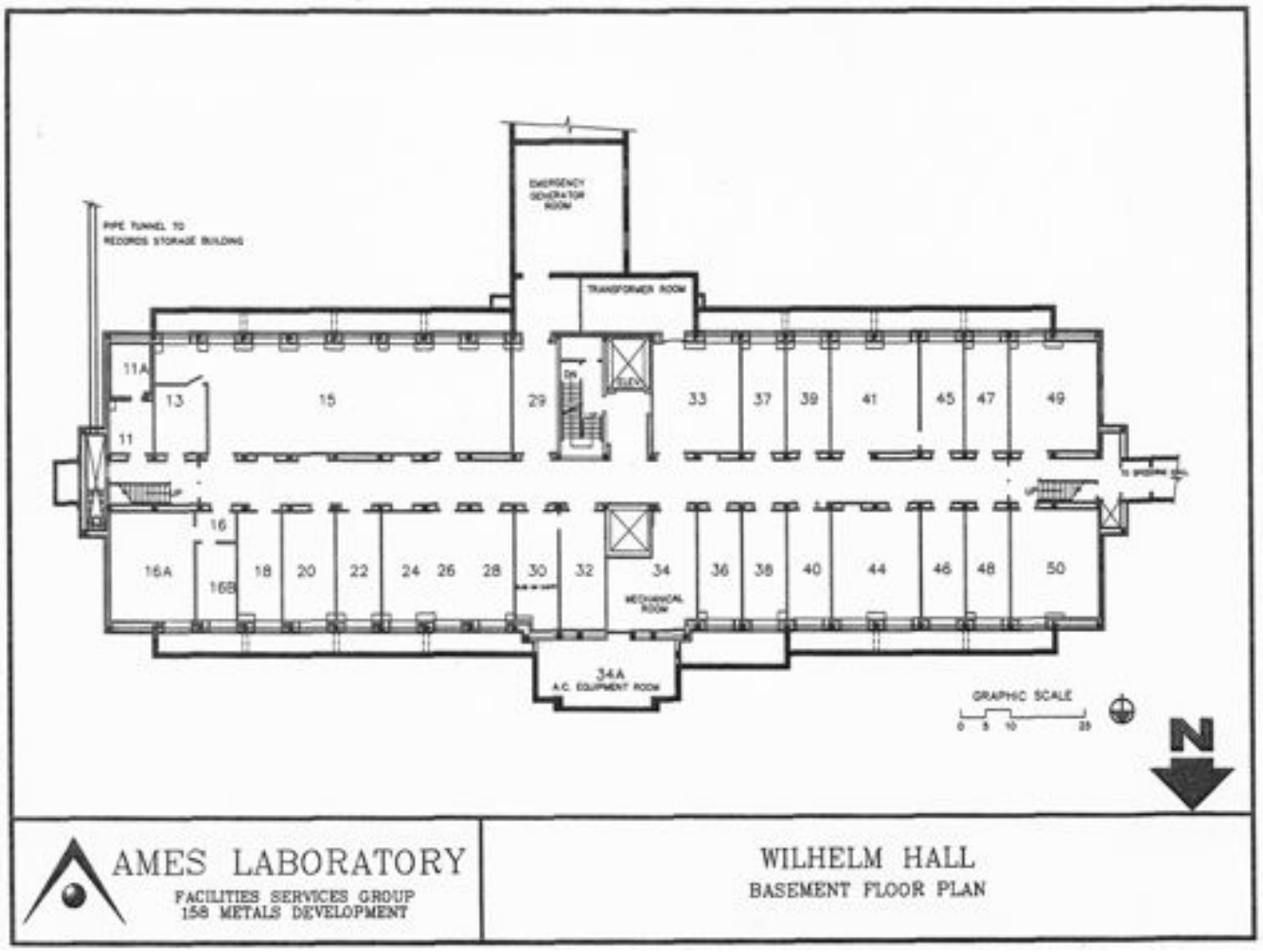
11. Additional Documentation – Plans – ca. 2007

BASEMENT PLAN



(MAP SOURCE: Ames Laboratory Files – Facilities Services)

Metallurgy Building	Story
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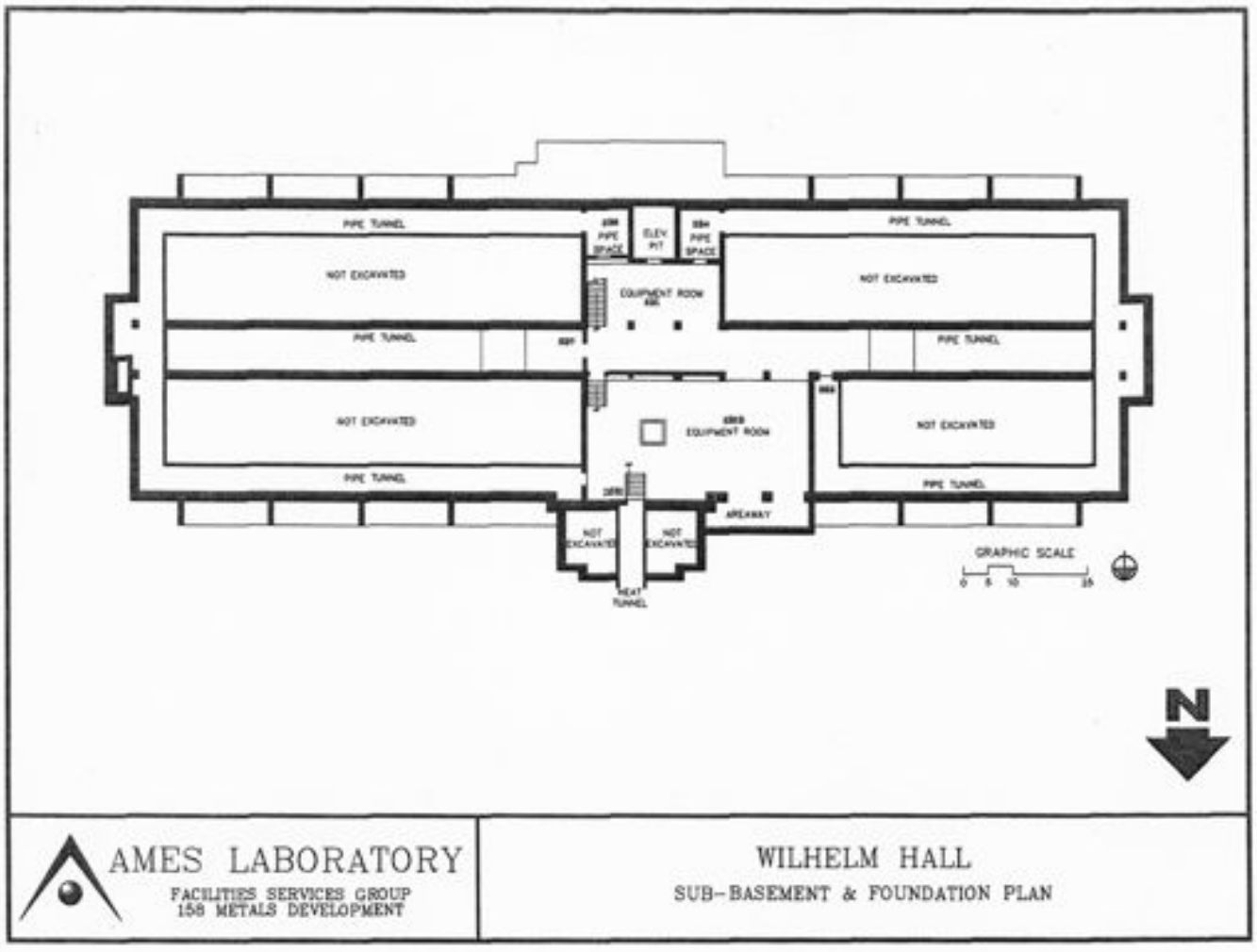
11. Additional Documentation – Plans – ca. 2007

SUB-BASEMENT PLAN



(MAP SOURCE: Ames Laboratory Files – Facilities Services)

Metallurgy Building	Story
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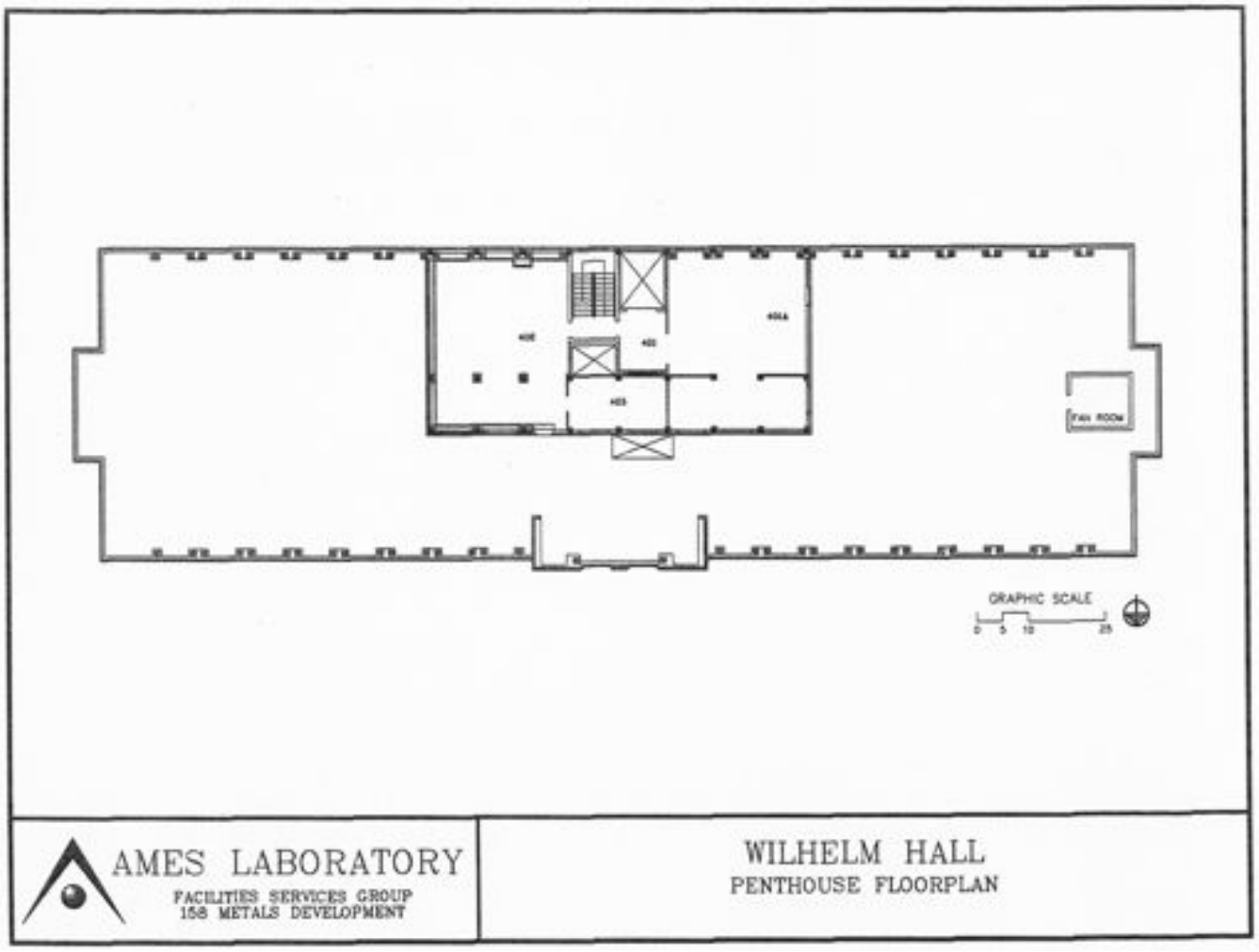
11. Additional Documentation – Plans – ca. 2007

PENTHOUSE PLAN



(MAP SOURCE: Ames Laboratory Files – Facilities Services)

Metallurgy Building	Story
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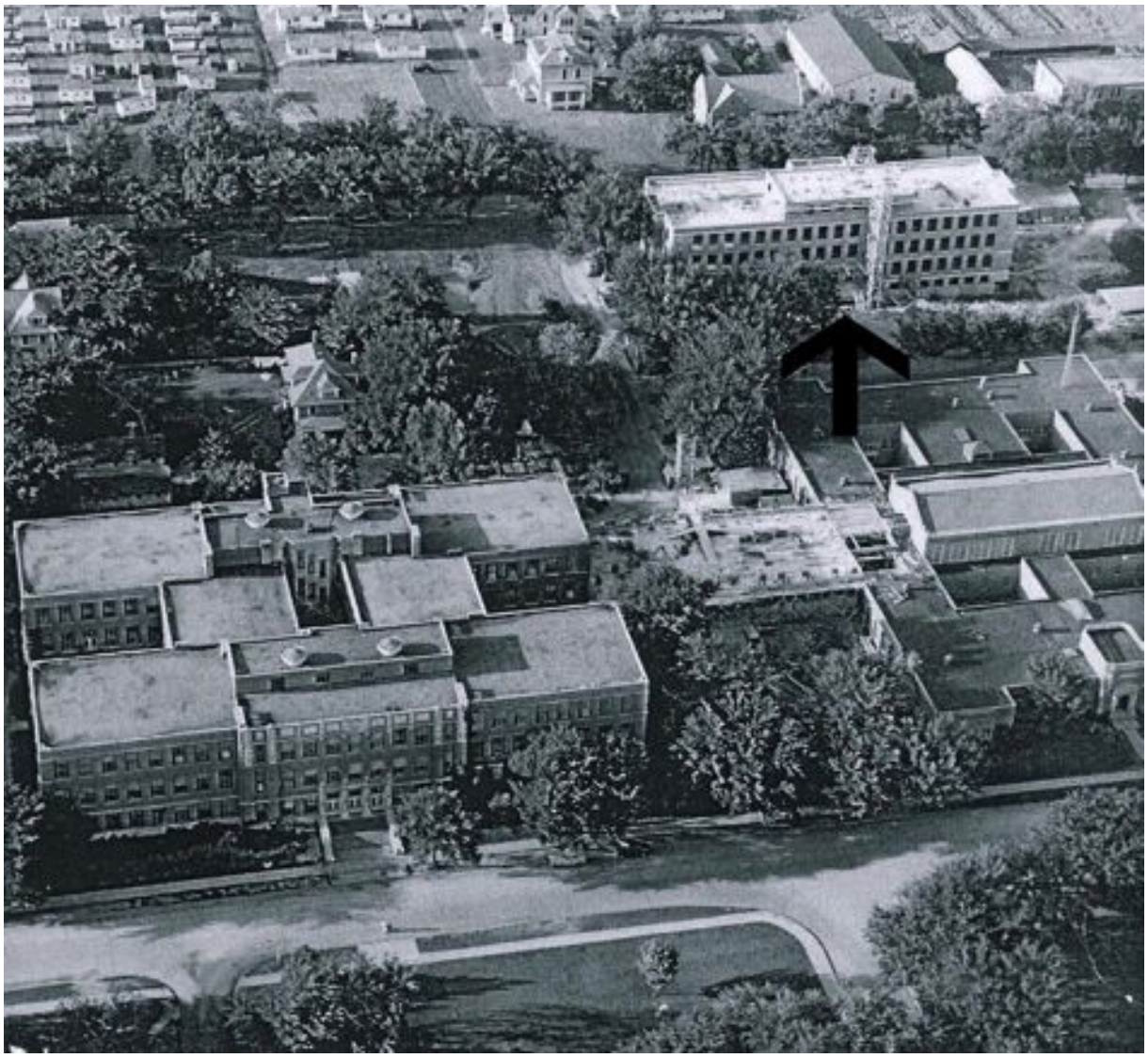
11. Additional Documentation – Photographs

AERIAL PHOTOGRAPH – ca. 1948



(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

This aerial photograph documents Wilhelm Hall nearing completion. Note that neither Spedding Hall nor Metal Developments were yet in existence.

Metallurgy Building	Story
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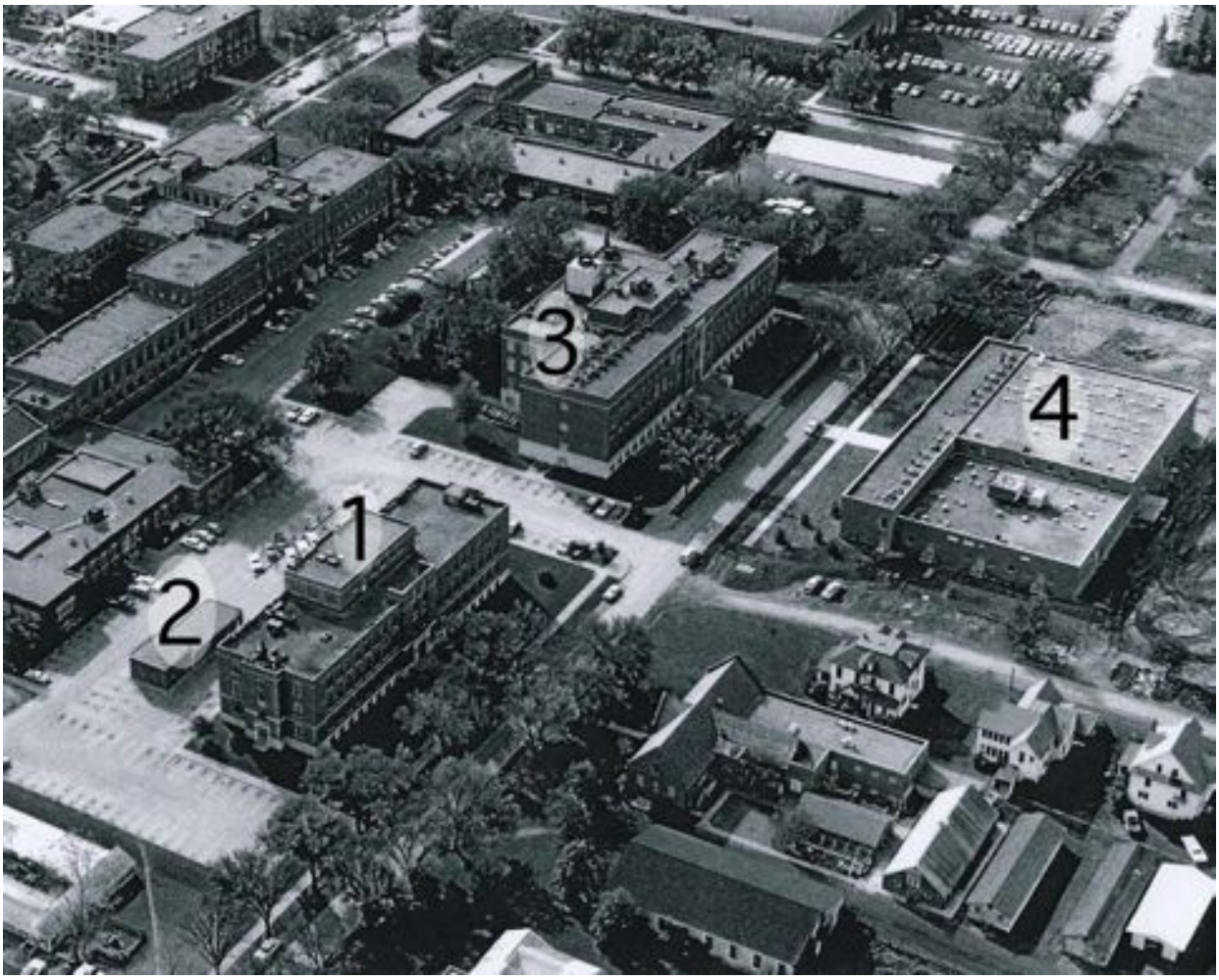
11. Additional Documentation – Photographs

AERIAL PHOTOGRAPH – ca. 1960



(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

This aerial photograph shows the historic relationship between the buildings of the Ames Laboratory. As seen here those buildings are:
1) Wilhelm Hall (Metallurgy Building)
2) Records Storage (Garage/Computer Garage)
3) Spedding Hall (Research Building)
4) Metals Development

Metallurgy Building	Story
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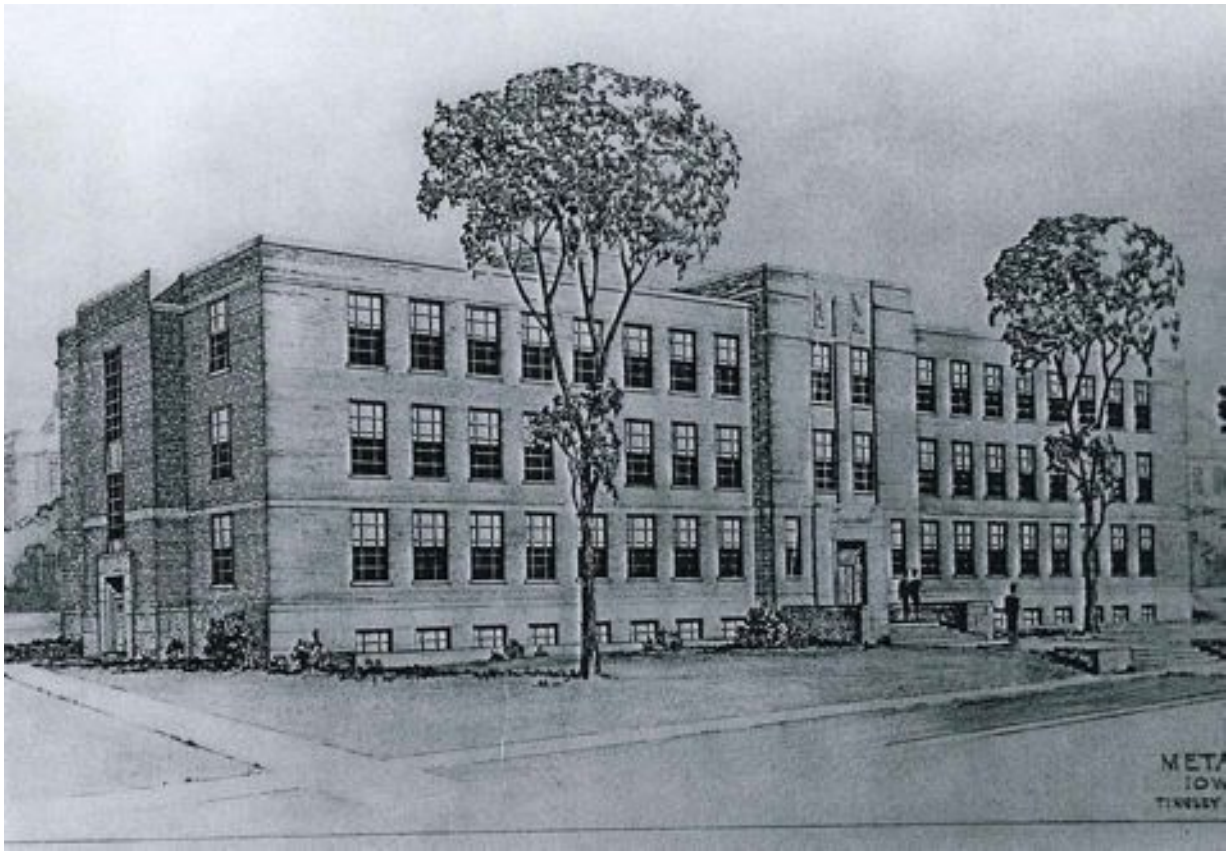
11. Additional Documentation – Photographs

ARCHITECT'S RENDERING – ca. 1948



(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

Metallurgy Building	Story
Name of Property	County
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11. Additional Documentation – Photographs

HISTORIC IMAGE – ca. 1949

(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

This image captures the building shortly after it was put into service. The impact of the now altered windows is best understood when compared to this photo.

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11. Additional Documentation – Photographs

HISTORIC IMAGE – ca. 1965

(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

This undated image dates to after the 1960 completion of Metals Development, seen here at left. The image provides a good view of the physical setting and the relationship between the three primary buildings of the Ames Laboratory.

Metallurgy Building	Story
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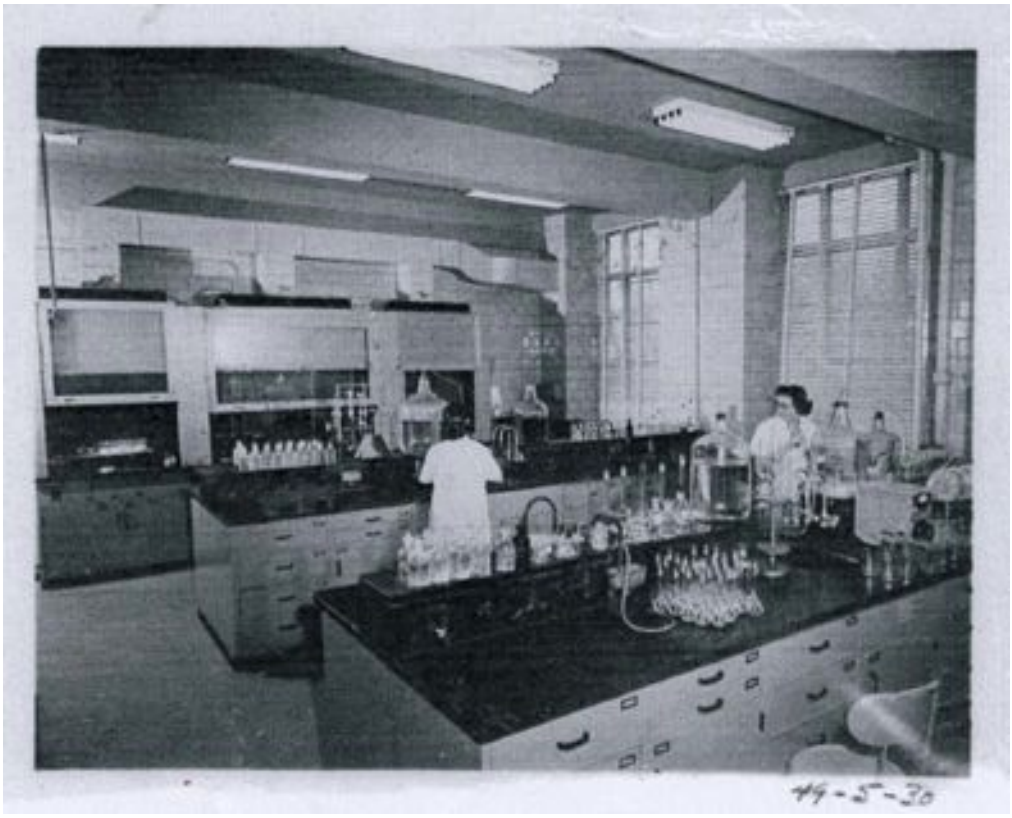
11. Additional Documentation – Photographs

HISTORIC IMAGE – 1949



(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

This 1949 image shows of view of one of the building's interior laboratory spaces. Due to the retention of historic finish materials, large window openings, and undivided interior spaces, the labs today retain a high level of historic integrity.

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11. Additional Documentation – Photographs

HISTORIC IMAGE – 1949

(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

View of a laboratory space.

Metallurgy Building	Story
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11. Additional Documentation – Photographs

HISTORIC IMAGE – Harley Wilhelm - Undated

(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

This undated image was likely taken in the 1960s and documents one of the historic leaders of the Ames Laboratory and the man for whom the building was renamed.

Metallurgy Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

9. Major Bibliographic References

Ames Lab Files – Department of Public Affairs
Site Maps – Construction Dates – *Ames Lab Insider* (various issues) – Historic Images

Ames Lab Files – Facility Services Office
Site Maps – Current Floor Plans – Historic Floor Plans

Day, H. Summerfield. *The Iowa State University Campus and Its Buildings, 1859-1979.* Ames: Iowa State University, 1980.

Internet Resources

Source for USGS Topographic maps	www.terraserver.com www.topozone.com
Legal Description	www.iowaassessors.com
Ames Laboratory	www.external.ameslab.gov
Iowa State Daily	www.iowastatedaily.com

Iowa State Special Collections, Parks Library

Spedding Papers: "Title I Report: Metals Process Development Plant for the U.S. Atomic Energy Commission at Ames Laboratory, Ames, Iowa" prepared by Tinsley, Higgins, Lighter & Lyon Architects. December 29, 1958.

"Preliminary Proposal for Metals Process Development Plant for The Ames Laboratory Ames, Iowa" prepared by Tinsley, Higgins, Lighter & Lyon Architects. January 10, 1959.

Oral Informants. Dan Kayser, Sr. Environmental Specialist, Ames Laboratory. (Various, January-February, 2009)
Mark Grootveld, Facility Services Group Manager, Ames Laboratory, (February 25, 2009)

Shank, Wesley I. *Iowa's Historic Architect's: A Biographical Dictionary.* Iowa City: University of Iowa Press, 1999.

Site Inventory Form

State Historical Society of Iowa
(November 2005)

State Inventory No. _____ ☒ New ☐ Supplemental
☐ Part of a district with known boundaries (enter inventory no.) _____
Relationship: ☐ Contributing ☐ Noncontributing
☐ Contributes to a potential district with yet unknown boundaries
National Register Status:(any that apply) ☐ Listed ☐ De-listed ☐ NHL ☐ DOE
9-Digit SHPO Review & Compliance (R&C) Number _____
☐ Non-Extant (enter year) _____

1. Name of Property

historic name Research Building

other names/site number Research Laboratory. Spedding Hall

2. Location

street & number Pammel Drive
city or town Ames ☐ vicinity, county Story
Legal Description: (If Rural) Township Name Township No. Range No. Section Quarter of Quarter
Washington 83N 24W 04 __ __
(If Urban) Subdivision _____ Block(s) _____ Lot(s) _____

3. State/Federal Agency Certification [*Skip this Section*]

4. National Park Service Certification [*Skip this Section*]

5. Classification

Category of Property (Check only one box)

☒ building(s)
☐ district
☐ site
☐ structure
☐ object

Number of Resources within Property

If Non-Eligible Property Enter number of:		*If Eligible Property, enter number of:* Contributing	Noncontributing
__	buildings	1	__ buildings
__	sites	__	__ sites
__	structures	__	__ structures
__	objects	__	__ objects
__	Total	1	__ Total

Name of related project report or multiple property study (Enter "N/A" if the property is not part of a multiple property examination).
Title *Historical Architectural Data Base Number*
N/A _____

6. Function or Use

Historic Functions (Enter categories from instructions)

05B03 EDUCATION; offices

05D EDUCATION; research

_____

Current Functions (Enter categories from instructions)

05B03 EDUCATION; offices

05D EDUCATION; research

_____

7. Description

Architectural Classification (Enter categories from instructions)

06C 20TH CENTURY REVIVAL; Classical Revival

_____

_____

_____

Materials (Enter categories from instructions)

foundation 10B CONCRETE; poured
walls (visible material) 03 BRICK
roof _____
other _____

Narrative Description (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" representing your opinion of eligibility after applying relevant National Register criteria)

☒ Yes ☐ No ☐ More Research Recommended	A	Property is associated with significant events.
☒ Yes ☐ No ☐ More Research Recommended	B	Property is associated with the lives of significant persons.
☐ Yes ☒ No ☐ More Research Recommended	C	Property has distinctive architectural characteristics.
☐ Yes ☒ No ☐ More Research Recommended	D	Property yields significant information in archaeology or history.

County Story Address Pammel Drive Site Number
City Ames District Number

Criteria Considerations

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B Removed from its original location.
- ☐ C A birthplace or grave.
- ☐ D A cemetery
- ☐ E A reconstructed building, object, or structure.
- ☐ F A commemorative property.
- ☐ G Less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

28 SCIENCE

Significant Dates

Construction date
1951 ☐ check if circa or estimated date
Other dates, including renovation

Significant Person
(Complete if National Register Criterion B is marked above)
Frank Harold Spedding

Architect/Builder
Architect
Tinsley, Higgins & Lighter
Builder
James Thompson & Sons

Narrative Statement of Significance (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

9. Major Bibliographical References

Bibliography ☐ See continuation sheet for citations of the books, articles, and other sources used in preparing this form

10. Geographic Data

UTM References *(OPTIONAL)*

	Zone	*Easting*	*Northing*		*Zone*	*Easting*	*Northing*
1	15	446315	4653323	2			
3				4			

☐ See continuation sheet for additional UTM references or comments

11. Form Prepared By

name/title Alexa McDowell, Architectural Historian
organization AKAY Consulting date 02-15-09
street & number 1226 6th Street telephone 515-491-5432
city or town Boone state IA zip code 50036

ADDITIONAL DOCUMENTATION **(Submit the following items with the completed form)**

FOR ALL PROPERTIES

1. ***Map:*** showing the property's location in a town/city or township.
2. ***Site plan:*** showing position of buildings and structures on the site in relation to public road(s).
3. ***Photographs:*** representative black and white photos. If the photos are taken as part of a survey for which the Society is to be curator of the negatives or color slides, a photo/catalog sheet needs to be included with the negatives/slides and the following needs to be provided below on this particular inventory site:

   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____

   ☐ See continuation sheet or attached *photo & slide catalog sheet* for list of photo roll or slide entries.
   ☐ Photos/illustrations without negatives are also in this site inventory file.

FOR CERTAIN KINDS OF PROPERTIES, INCLUDE THE FOLLOWING AS WELL

1. ***Farmstead & District:*** (List of structures and buildings, known or estimated year built, and contributing or noncontributing status)
2. ***Barn:***
   a. A sketch of the frame/truss configuration in the form of drawing a typical middle bent of the barn.
   b. A photograph of the loft showing the frame configuration along one side.
   c. A sketch floor plan of the interior space arrangements along with the barn's exterior dimensions in feet.

State Historic Preservation Office (SHPO) Use Only Below This Line

Concur with above survey opinion on National Register eligibility: ☐ *Yes* ☐ *No* ☐ *More Research Recommended*
☐ *This is a locally designated property or part of a locally designated district.*

Comments: _____

Evaluated by (name/title): _____ *Date:* _____

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

2. Location, cont'd.

Iowa State University Campus, Ames, Story County, Iowa.

5. Classification, cont'd.

Spedding Hall (the common name will be used throughout) is considered a building and counts as one resource.

7. Description

Site Description

Spedding Hall is sited on the south side of Pammel Drive, in the northwest section of the Iowa State University campus. Pammel is a major east-west roadway, which provides access to many of the major university buildings on that end of the campus. Spedding Hall is set back from the street, with a shallow front lawn, sidewalk and narrow parking strip separating it from the street. A walkway connects the sidewalk to the building's primary entrance on the north. Ames Laboratory buildings, Wilhelm Hall and Metals Development, are located immediately east and north, respectively, with TASF attached to Spedding on the south. Iowa State University is currently constructing a new building on the west.

Property Description

Spedding Hall is a three-story brick construction on a poured concrete foundation. The rectangular building is simple in form and decorative devices, relying on a modernization of classical precedents in its stylistic expression. The classical influence is seen in the use of a raised podium, a highly symmetrical façade, and a hierarchical entrance. The use of a traditional red brick is in keeping with the American translation of the Classical Revival style. In Spedding the classical precedent is modernized by the highly restrained use of applied ornament, the large expanses of flat wall surface, the lack of window trim, the use of concrete (or stone) detailing on the raised foundation, cornice level, and to call out the primary entrance, the window configuration, and the typology of the building's name plate.

A sense of classical drama is created at the primary entrance, which is accessed via a set of stairs with flanking piers that rise first to an exterior landing. The entrance itself is accentuated by the utilization of a stepped surround that stretches the full height of the building, recalling the power of the classic super-order. Once in the building, the staircase continues to the building's first level, through a set of chrome doors and into an entryway with modern detailing designed to mark a break with tradition. In the entry the walls are covered in a buff, travertine marble - its smooth and shiny surface fully modern. Subtle coffering of the ceiling, the use of a stylized ribbing at the entance and the chrome stairs all enhance the feeling of a modern space.

7. Description, cont'd.

In plan Spedding Hall is an inverted and truncated T-shape. The interior space on each of the three primary floors (excluding the basement) is defined by a major corridor running east-west through the length of the building. Offices and laboratories in a variety of sizes line the corridor. A service space that accommodates an elevator shaft, a staircase and restrooms occupies the central core of the building. Additional office and laboratory spaces are accessed via north-south hallways that intersect the primary corridor on the either side of the central core. Secondary staircases are located off both of the intersecting hallways.

The interior finishes of Spedding Hall are typical throughout the building and are nearly identical to those found in Wilhelm Hall (1949) and Metals Development (1961). Clearly the choice of materials had everything to do with the nature of the buildings' function – scientific research. Interior walls are constructed of structural tile with a glazed face. The buff-colored, glazed tile walls are found in hallways, offices and laboratory spaces and, in Spedding, have a contrasting course of tile at baseboard level. The building's floors are polished, crushed rock (terrazzo). Ceilings in the hallways are dropped to accommodate HVAC systems, but remain exposed in the offices and laboratories.

The building's windows, primarily confined to the north elevation, are oversized, allowing a great deal of light into the interior spaces. The windows feature chrome frames and mullions with inset, operable awnings. The units read as a modified industrial window. Smaller versions are found at the east and west ends of the main corridor. The rear of the building, now attached to TASF, is without fenestration.

Integrity Considerations

Spedding Hall retains a high level of all seven aspects of historic integrity. The building remains on its original location, although its historic setting is somewhat altered by the attachment of the TASF on the south. Despite the proximity of TASF, Spedding Hall retains a sense of autonomy. It also retains its historic association with other university buildings, most significantly with Wilhelm Hall (an Ames Laboratory building) to the east and, although a later construction, Metals Development to the north.

The building's design and materials integrity is particularly high, with no major alteration of the building's façade. The building's interior retains its historic floor plan. Although written records indicate that alteration of interior spaces were made to accommodate changing spatial requirements, those alterations appear to have been limited to equipment changes as little evidence of structural alteration is apparent. Certainly, character-defining features, including those specific to the primary entry space and to the overall finish materials (which are indicative of the building's scientific research function and which visually connect it to both Wilhelm Hall and Metals Development), remain intact. The retention of materials and the continued functionality of spaces also speaks to the integrity of workmanship.

The high level of integrity relating to location, design, setting, materials, workmanship, and association all result in a high level of integrity of feeling, as together, these aspects assure that those who enter the building experience its historic nature.

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

7. Description, cont'd.

Property History

Spedding Hall (Research Laboratory) was constructed by the Atomic Energy Commission (later the Department of Energy) for the Ames Laboratory in 1951 to provide space to increase its research program at what was then known as the Iowa State College. The building joined Wilhelm Hall (Metallurgy), which was put into service in 1949. The site upon which the building was constructed was occupied by a Horticulture Department barn and storage area through 1925. At the time of its demolition in ca. 1949, the barn was functioning as the Iowa State College nursery school. (The Building of the Ames Laboratory, p11)

The history of the Ames Laboratory begins soon after the 1939 discovery of nuclear fission. With that discovery, the United States government became interested in focusing a national research effort on the development of nuclear energy. Dr. Frank H. Spedding came to Iowa State College (later Iowa State University) from Cornell College in ca. 1937 to assume the position of Associate Professor and Director of the Physical Chemistry Department. In 1941 he became a Professor of Chemistry, in 1950 a Professor of Physics, and, in 1962, a Professor of Metallurgy.

Dr. Spedding was recruited to the work of the Manhattan Project in 1941. As part of that effort, Spedding was called upon to organize and direct a research and development program that would work in tandem with the Manhattan Project's physics program. Along with other university and industrial labs across the country, the group at Ames began experimenting with better ways of producing uranium. Harley Wilhelm, a metallurgist with the Ames group, headed the team that developed a process for producing large ingots of high-grade uranium at a substantially reduced cost. The Ames group produced one-third of the uranium used in the "first successful self-sustaining chain reaction initiating the controlled release of nuclear energy."

Having proved that a chain reaction could be self-sustained and controlled, the demand for pure uranium rose dramatically and the Ames group worked to help meet that demand. The work involved continual refinement of the enrichment process, including both the melting and casting of uranium; the process they developed remains in use today. In total, the Ames group produced more than 2 million pounds of uranium for the Manhattan Project, playing a significant role in the outcome of World War II.

The Atomic Energy Commission (AEC) officially established the Ames Laboratory on May 17, 1947. The Lab's purpose was "… to build up and maintain a strong group of scientists working in the fundamental sciences." At the October 1960 dedication of the Metals Development building, John A. McCone, Chairman of the U.S. Atomic Energy Commission was asked why the AEC chose Ames to fulfill the Ames Laboratory contract and he responded that "… laboratories of this type are the lengthening shadow of the individual who has the unique and unusual capacity to search into the mysteries of the problems and also to attract as a magnet, men of dedication and skill to work with him. Many years ago, long before I had anything to do with this, the Office of Scientific Research found in Professor Spedding that man. That is why this laboratory is in Ames." (Ames Lab – Public Affairs)

Research Building	Story
Name of Property	County
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Address	City

7. Description, cont'd.

But long before the construction of Metals Development came the Lab's first building, the Metallurgy Building (later Wilhelm Hall), which was occupied in 1949. The Research Laboratory (aka Research Building and, later, Spedding Hall) was constructed and occupied by 1951. This pair became the physical center of the Ames Laboratory, with additional office and laboratory space located in the Institute for Atomic Research (also built in 1947-48 and now known as the Office and Laboratory Building) and Gilman Hall.

Early word of the Atomic Energy Commission's (AEC) desire to construct a new building to add to the Ames Laboratory facility came at the February 10, 1948 Iowa State College meeting, where it was reported that the AEC intended to expand its research program. To that end, the Commission called for "…the construction of a building which would constitute a 5th wing of the present Chemistry Building at an estimated cost of $2,000,000." In response, the college board authorized the negotiation of a ninety-nine year lease for the land upon which the Lab building would be constructed – standard practice in the relationship between the school and the federal agency to which the Ames Laboratory was associated. (Spedding papers)

Spedding Hall was designed by Tinsley, Higgins & Lighter with James Thompson & Sons acting as the contractor. Tinsley, Higgins & Lighter was a Des Moines architecture firm, which from (1948-1967) designed a total of six buildings for the Ames Laboratory, including Wilhelm Hall and Metals Development. The firm was known by various names during the course of its existence, with its founding partner, Vernon F. Tinsley, a former student at Iowa State College. (Day)

Vernon Tinsley was Iowa-born and worked intermittently at the well-known Iowa firm of Proudfoot, Bird & Rawson. He died in 1976. Burdette Higgins was born in Des Moines, Iowa. Like Tinsley (and many others), Higgins worked for Proudfoot, Bird & Rawson. He attended Drake University and Harvard's School of Architecture. He joined the firm of Tinsley & McBroom in 1929. He was succeeded in the firm by his son, Tom G. Higgins. Clyde W. Lighter was also Iowa-born. He received his architecture degree at the University of Minnesota after transferring there from the University of Iowa. He worked in Minnesota after graduation, but returned to his home state to work for Tinsley, McBroom & Higgins in 1938. He became a partner in the firm in 1945. Lighter died in 1984. (Shank)

The firm is responsible for the design of the following buildings on the Iowa State University Campus. (Shank: 165)

Building	Date	Notes
Computer Garage (Records Storage)	1948	Tinsley, Higgins & Lighter
Synchrotron Building	1948-1949	Tinsley, Higgins & Lighter
Metallurgy Building (Wilhelm Hall)	1947-1949	Tinsley, Higgins & Lighter
Research Building (Spedding Hall)	1949-1951	Tinsley, Higgins & Lighter

Research Building	Story
Name of Property	County
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7. Description, cont'd.

Building	Date	Notes
Women's Gymnasium	1940-1941	Tinsley, McBroom & Higgins
Warehouse & Shop	1965-1966	Tinsley, Higgins, Lighter & Lyon
Maintenance Shop	1966-1967	Tinsley, Higgins, Lighter & Lyon
Metals Development	1966-1967	Tinsley, Higgins, Lighter & Lyon

Other designs by the firm include: (Shank: 165)

Building	Location	Date	Notes
Ames High School (City Hall)	Ames	1938	Tinsley, McBroom & Higgins
Des Moines Bankers Life Insurance Bldg.	Des Moines	1939	Tinsley, McBroom & Higgins
Robert Foster House	Ottumwa	1933	Tinsley, McBroom & Higgins
Dr. W.C. Newell House	Ottumwa	1933	Tinsley, McBroom & Higgins
United Benefit Life Office Bldg.	Omaha, NE	1942	Tinsley, McBroom & Higgins

Construction of the Research Laboratory (the name as recorded on the building's façade) was started in the spring of 1949 with the building placed in service in the fall of 1951. At that time, the building occupants included offices for the AEC office staff, the Receiving Department, Technical Information Services with a document library, the Medical Sections, and divisions of Personnel and Security.

The building's name was changed to Frank O. Spedding Hall at the university's board meeting in June of 1973. The change was done to honor Spedding whose work with rare earth metals was considered "pioneering research" and who was widely noted as one of the "world's foremost experts on the identification and separation of the rare earths." (Parks Library Special Collections, Frank H. Spedding papers) Spedding's service was integral to the development and continued success of the Ames Laboratory research program at Iowa State University.

Although the Ames Laboratory's early history may be most intimately linked to the uranium program of the war years, the facility's research broadened over the ensuring years and became no less significant in the scientific world. Under the continued influence of Frank Spedding and Harley Wilhelm, the scientists of the Ames Lab directed their efforts in a variety of areas including the development of Iowa's first nuclear reactor, the Iowa State Teaching Reactor, which "went critical" on October 19, 1959. Today, Ames' mission focus is on materials science, engineering, analytical instrumentation and chemical sciences that provides expertise to the Department of Energy (DOE) laboratory system in the areas of energy and environmental improvement. Ames' core capabilities are in Condensed Matter Physics and Materials Science, Chemical and Molecular Science and Applied Materials Science and Engineering; included in these is the computational support needed to carry out its mission. Ames operates the Materials Preparation Center (MPC), an Office of Science Specialized Research Center, which provides capabilities in preparation, purification, fabrication and characterization of materials in support of R&D programs throughout the world. Ames also collaborates with the DOE's applied energy technology, fossil energy and nonproliferation programs.

Research Building	Story
Name of Property	County
Pammel Drive	Ames
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7. Description, cont'd.

A measure of the Lab's success and acclaim can be taken with the following, much-abbreviated list of its achievements.

> The Ames Project received the Army/Navy E Flag for Excellence in Production on October 12, 1945, signifying two-and-a-half years of excellence in industrial production of metallic uranium as a vital war material. Iowa State is unique among educational institutions to have received this award for outstanding service, an honor normally given to industry.
>
> Spedding becomes a member of the National Academy of Sciences in 1956. In 1967, Iowa State proudly claimed three out of the four Iowa scientists who at that time were National Academy Sciences members: Henry Gilman, Jay Lush, and Frank Spedding.
>
> In 1957 the Lab received the Chemical Engineering Achievement Award for research, development and efficient application of chemical engineering principles and processes in the recovery of rare earth metals.
>
> In 1959 members of Nikita Khruschev's party visit Ames Lab during Khruschev's visit to Iowa State University.
>
> In 1961 Spedding receives Iowa's Distinguished Citizen's Award from Governor Erbe.
>
> In 1967 Spedding was one of three to receive the Atomic Energy Commission Citation for outstanding service in the nation's atomic energy program.

8. Statement of Significance

Spedding Hall is considered eligible for listing on the National Register of Historic Places under Criterion A in its association with the history of science. The building is considered significant at the local and state level, although it is believed that additional research and contextual development may support a case for national significance.

Spedding Hall is a primary building associated with the work of the Ames Laboratory spanning over fifty years. Although the research for which the Lab is most commonly associated, that of uranium production and purification related to the Manhattan Project, occurred prior to the construction of Spedding Hall, the building represents the work of the Lab as a whole. In addition, scientific research in the areas of nuclear energy and rare earth metals continued after the Manhattan Project era. Indeed, much appears to have grown out of the discoveries of that period and the work subsequent to that of the Manhattan Project is directly associated with Spedding Hall.

Spedding Hall is also considered eligible for listing on the National Register of Historic Places under Criterion B in association with Frank Spedding, who served as the first director of both the Ames Laboratory facility at the Iowa State College and the Institute for Atomic Research and as a senior

Research Building	Story
Name of Property	County
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8. Statement of Significance, cont'd.

scientist. Spedding's credentials as a scientist have been credited with the involvement of Iowa State College in the Manhattan Project, the subsequent development of the Ames Laboratory and the eventual establishment of the office Ames Laboratory. During his lifetime, Spedding was universally noted as one of the world's foremost experts on the identification and separation of the rare earths. Frank Spedding headed the Ames Lab for twenty-five years and the work of the Lab cannot be separated from his influence.

The retention of a high level of all seven aspects of historic integrity enhances the case for significance for Spedding Hall.

Research Building	Story
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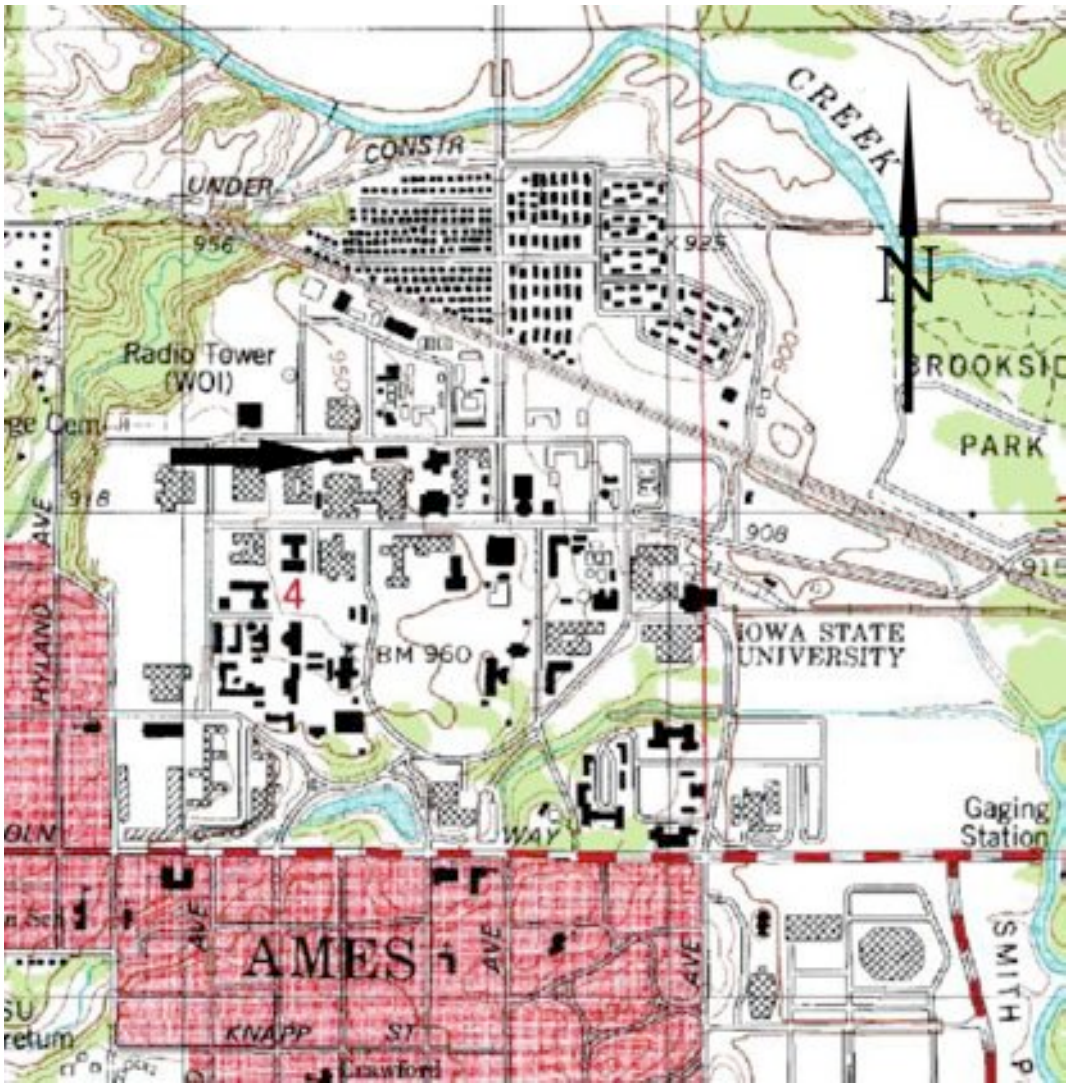
11. Additional Documentation – Maps

USGS 7.5 MINUTE TOPOGRAPHIC MAP – AMES QUAD (1993)



(MAP SOURCE: www.terraserver.com)

The location of Spedding Hall is indicated by the arrow.

Research Building	Story
Name of Property	County
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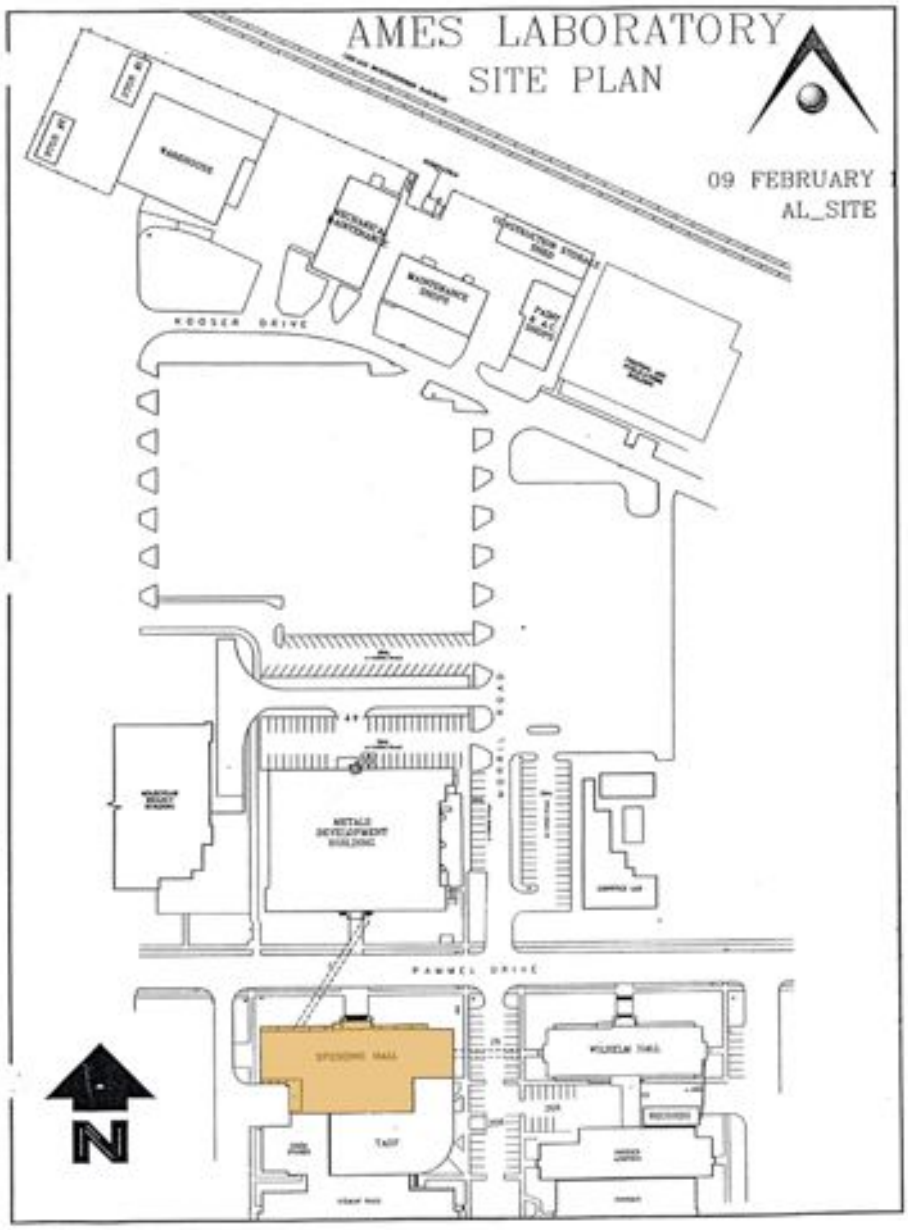
Address	City

11. Additional Documentation – Maps

SITE MAP



(MAP SOURCE: Ames Laboratory – Facility Services – ca. 2007)

The location of Spedding Hall is indicated by the orange shading.

Research Building	Story
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11. Additional Documentation - Photographs

View of Spedding Hall within the context of its streetscape, looking east along Pammel Drive. Note Wilhelm Hall is the next building east of Spedding.

(All images by AKAY Consulting – January 22, 2009 or February 25, 2009)

Research Building	Story
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Address	City

11. Additional Documentation - Photographs

View of Spedding Hall, looking southwest across Pammel Drive.

Research Building	Story
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Address	City

11. Additional Documentation – Photographs

View of the east elevation of Spedding Hall at its connection to the Technical Services and Administration Facility (TASF) on the south.

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Address	City

11. Additional Documentation – Photographs

View of the primary (north) entrance to Spedding Hall. Note the building's original nameplate in place over the entrance - "Research Laboratory". The highly structured symmetry of the façade with this hierachical entrance recalls the logic and order of the Classical style. In both Spedding and Wilhelm Hall, the classical influence is modernized through the simplification of forms and details, particulary the windows and trim.

Research Building	Story
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11. Additional Documentation – Photographs

Interior view just inside the primary entrance, looking south into the foyer and toward the elevator. The primary hallway intersects this view, running east-west along the length of the building. Note the use of travertine marble on the walls, which further modernizes the building.

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Address	City

11. Additional Documentation – Photographs

Interior view looking north from the elevator vestibule toward the main entrance.

Research Building	Story
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Address	City

11. Additional Documentation – Photographs

Interior view: typical hallway. The use of glazed, structural tile in the hallways, offices and lab spaces creates a visual link between the primary research buildings of the Ames Laboratory – Spedding, Wilhelm and Metals Development.

Research Building	Story
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11. Additional Documentation – Photographs

View of the third floor hallway where the replacement of aging systems (ductwork, etc.) is underway. The drop ceiling was part of the original building design allowing for the needed service systems (e.g. electrical, ventilation.)

Research Building	Story
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11. Additional Documentation – Photographs

View of a typical laboratory space. Like the lab spaces in Wilhelm and Metal Development, walls are glazed tile, floors tile, and ceilings are high with the space generally open to allow for myriad equipment configurations.

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Address	City

11. Additional Documentation – Photographs

View of a typical office space. Note that the historic flooring has been replaced, but otherwise the space retains its historic form and materials.

Research Building	Story
Name of Property	County
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Address	City

11. Additional Documentation – Photographs

View of an interior stairwell.

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of typical window, which appears to retain its historic configuration and materials. The large window has a smaller, inset section that is operable.

Research Building	Story
Name of Property	County
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Address	City

11. Additional Documentation – Photographs

This first aid closet was called for in the historic plans and is documented in an historic image that follows. Today it is non-functional, having been replaced with safety features and devices more advanced and specific to the work now being done in the building.

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation

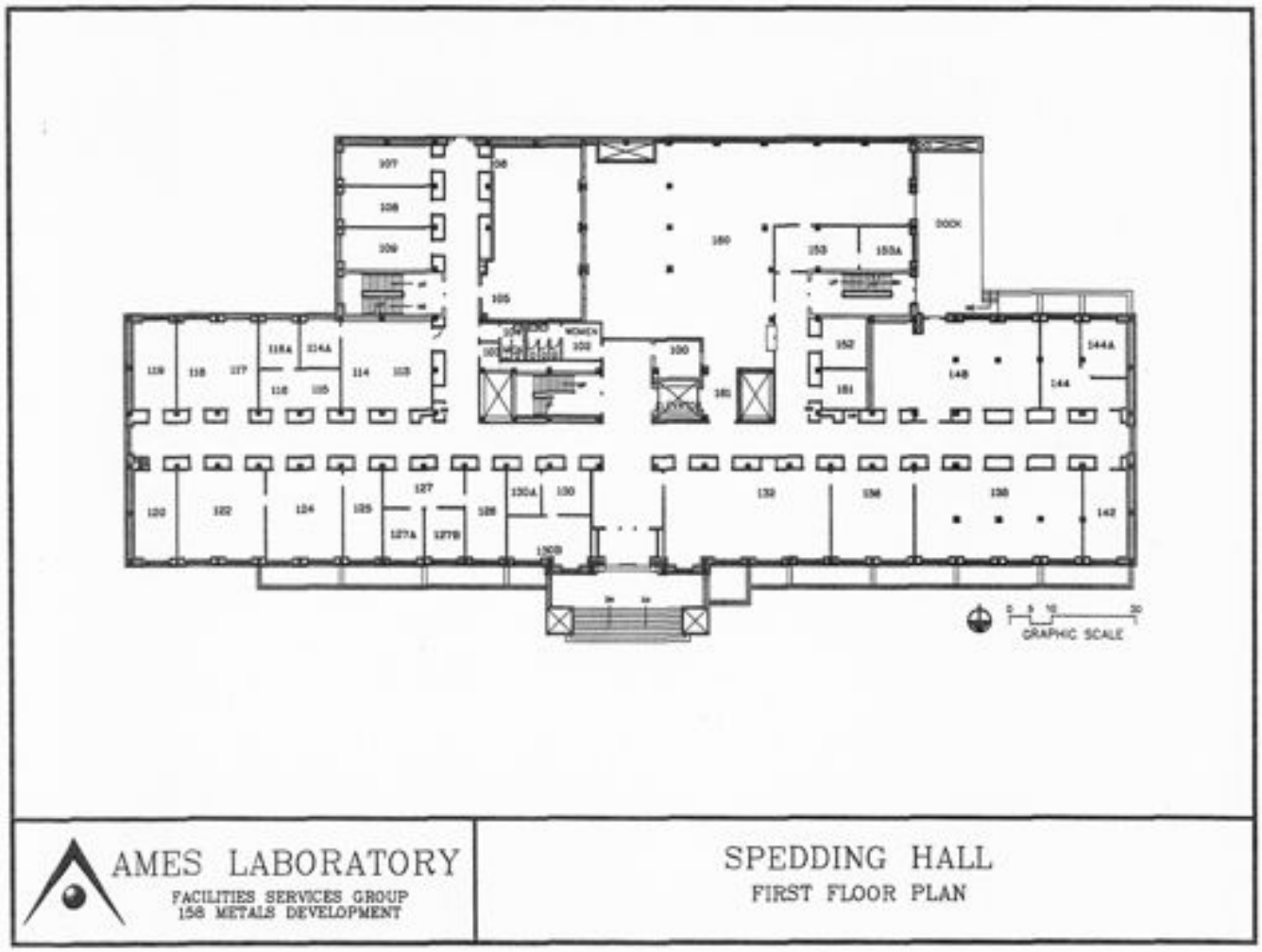
PHOTOGRAPHS

View of the tunnel running beneath Pammel Drive, connecting Spedding Hall to Metals Development. This view is from Metals, looking north toward Spedding. The plans for the tunnel are found with the design plans for Metals Development. A similar tunnel connects Spedding to Wilhelm. The tunnels were designed to provide for the transport of materials between buildings as well as the connection of heating and electrical services.

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Plans – ca. 2007

FIRST FLOOR PLAN

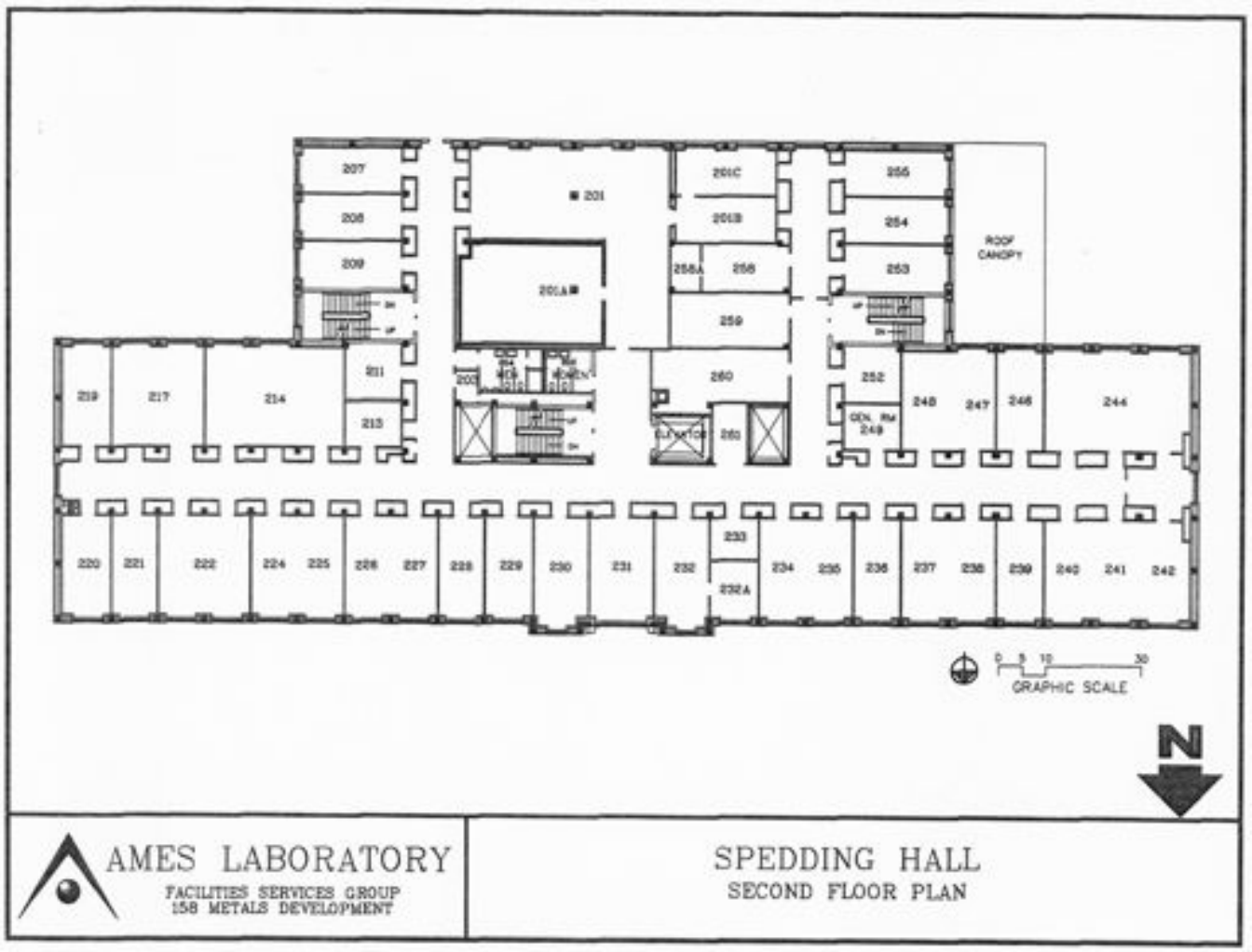


(PLAN SOURCE: Ames Laboratory – Facilities Services)

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Plans – ca. 2007

SECOND FLOOR PLAN

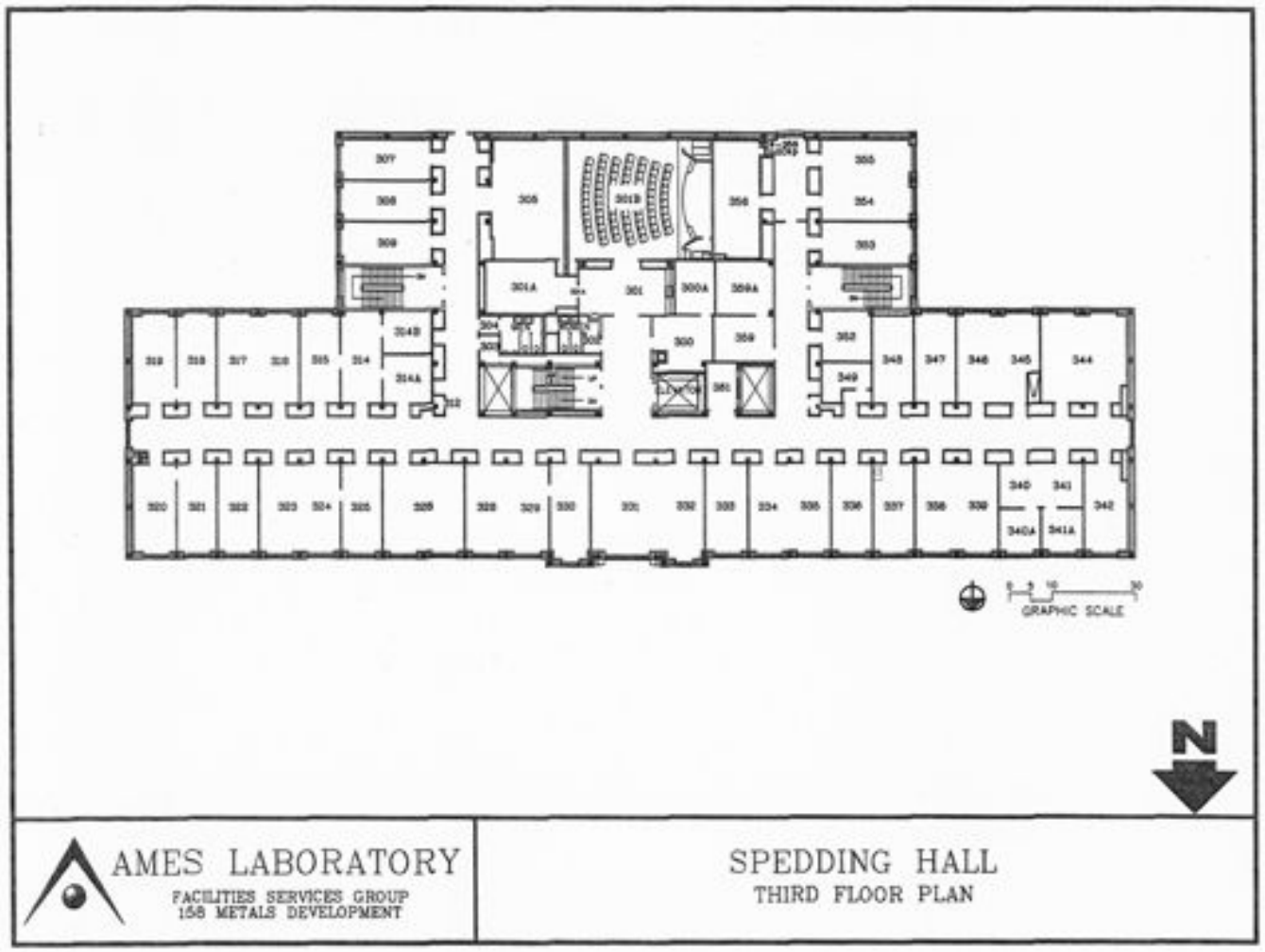


(PLAN SOURCE: Ames Laboratory – Facilities Services)

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Plans – ca. 2007

THIRD FLOOR PLAN

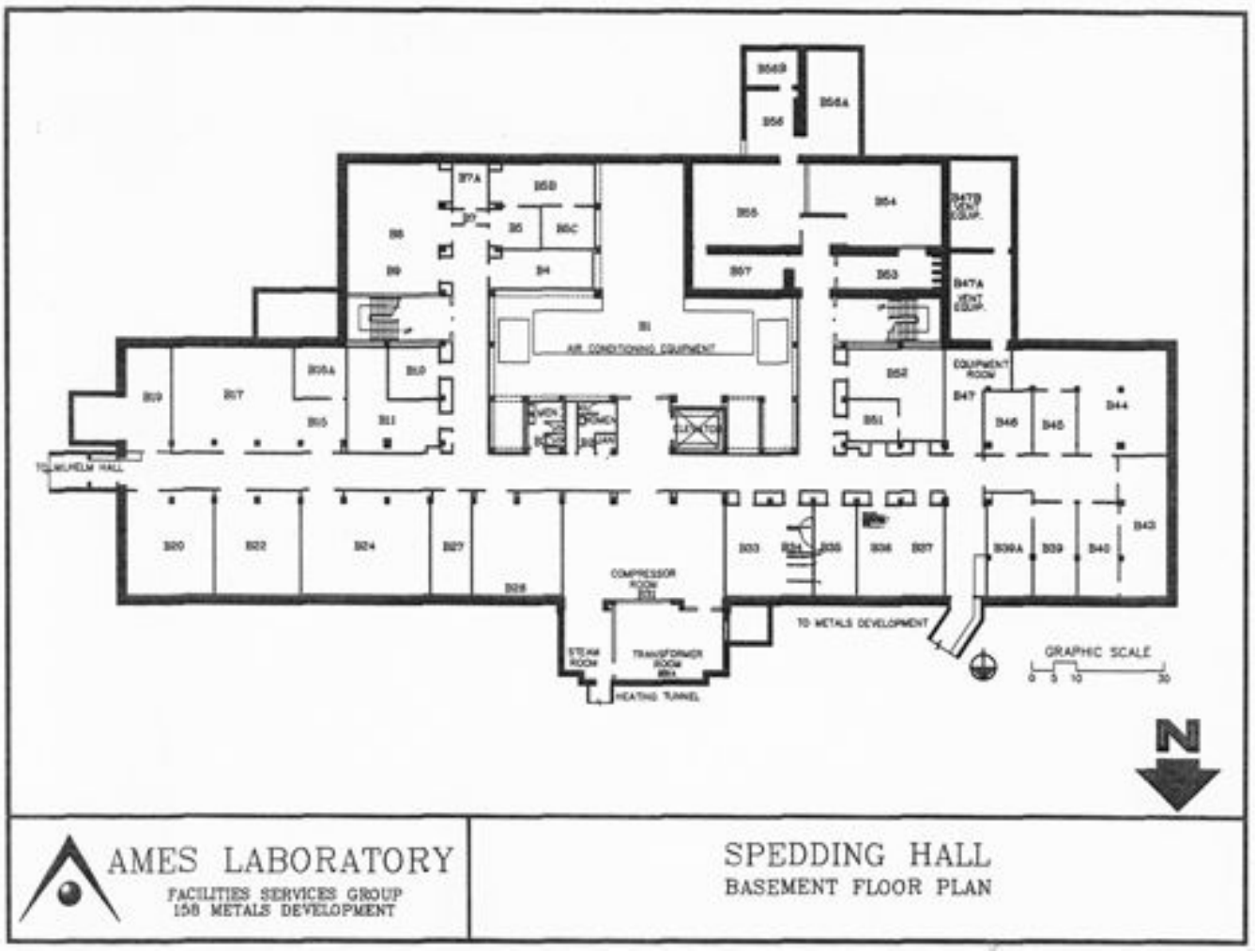


(PLAN SOURCE: Ames Laboratory – Facilities Services)

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Plans – ca. 2007

BASEMENT PLAN

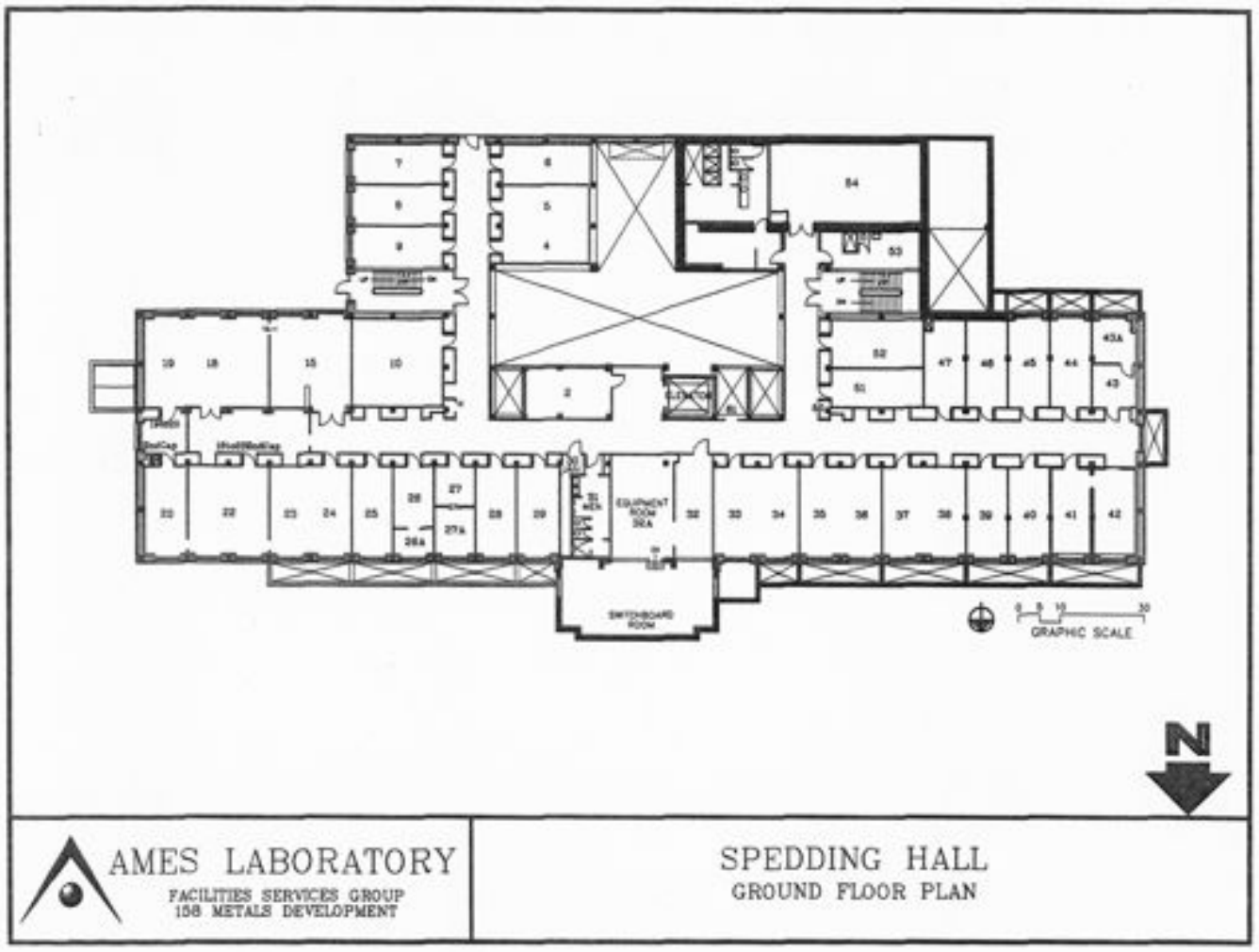


(PLAN SOURCE: Ames Laboratory – Facilities Services)

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Plans – ca. 2007

GROUND FLOOR PLAN

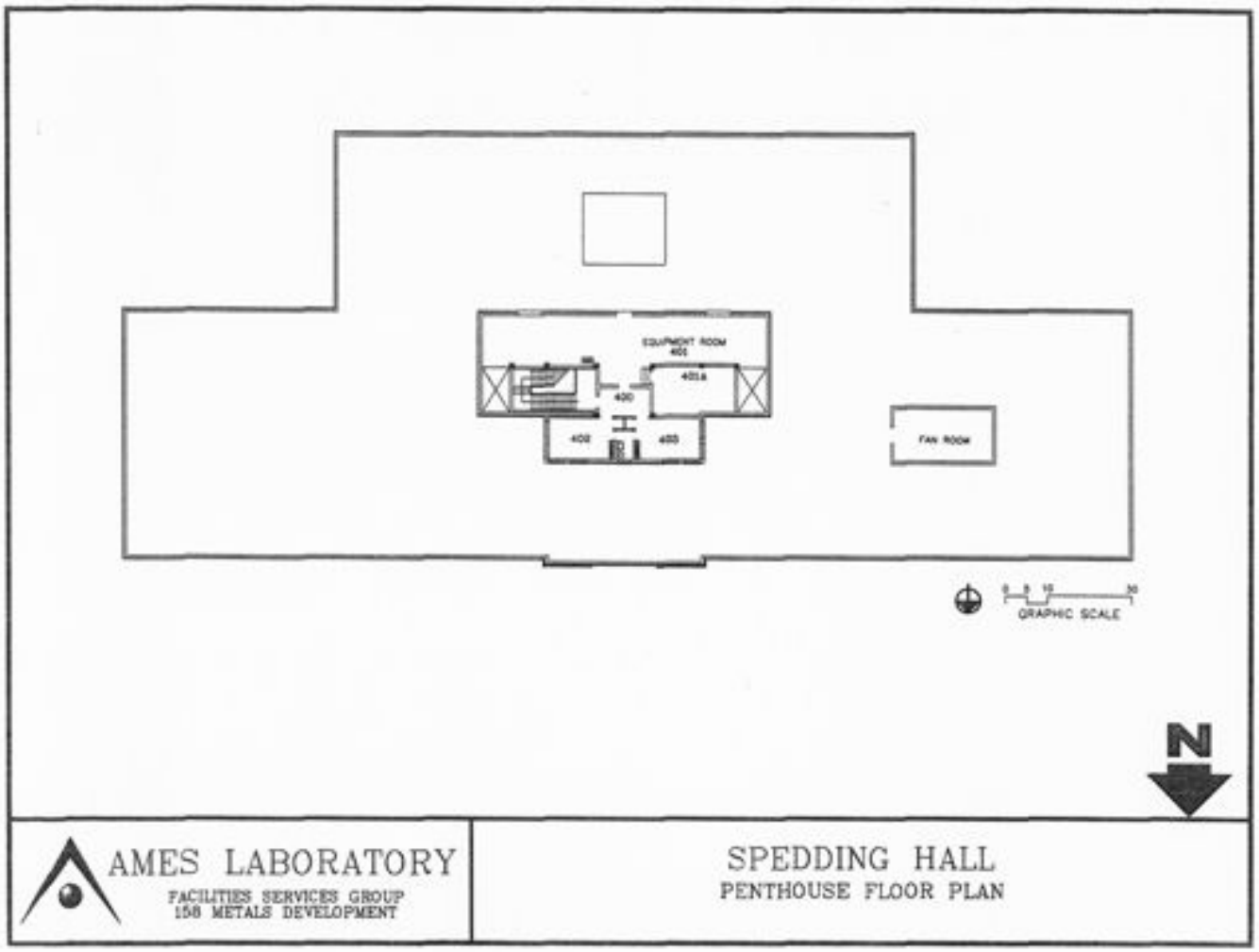


(PLAN SOURCE: Ames Laboratory – Facilities Services)

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Plans – ca. 2007

PENTHOUSE PLAN

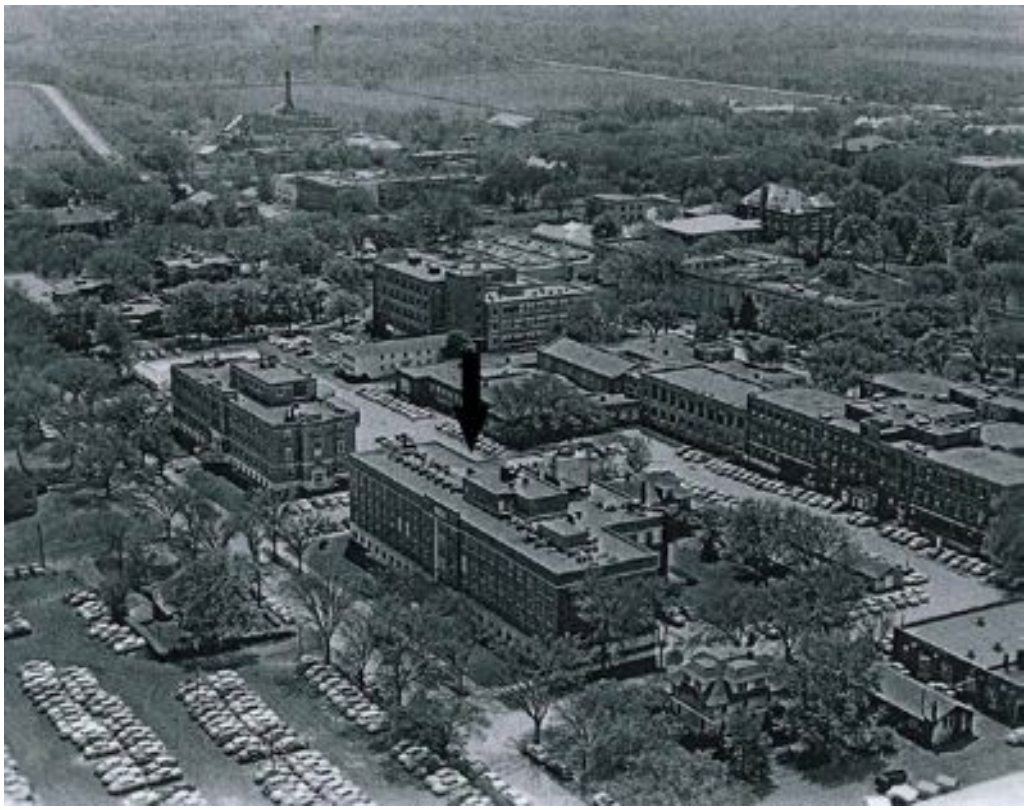


(PLAN SOURCE: Ames Laboratory – Facilities Services)

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Historic Images

Aerial View – ca. 1955



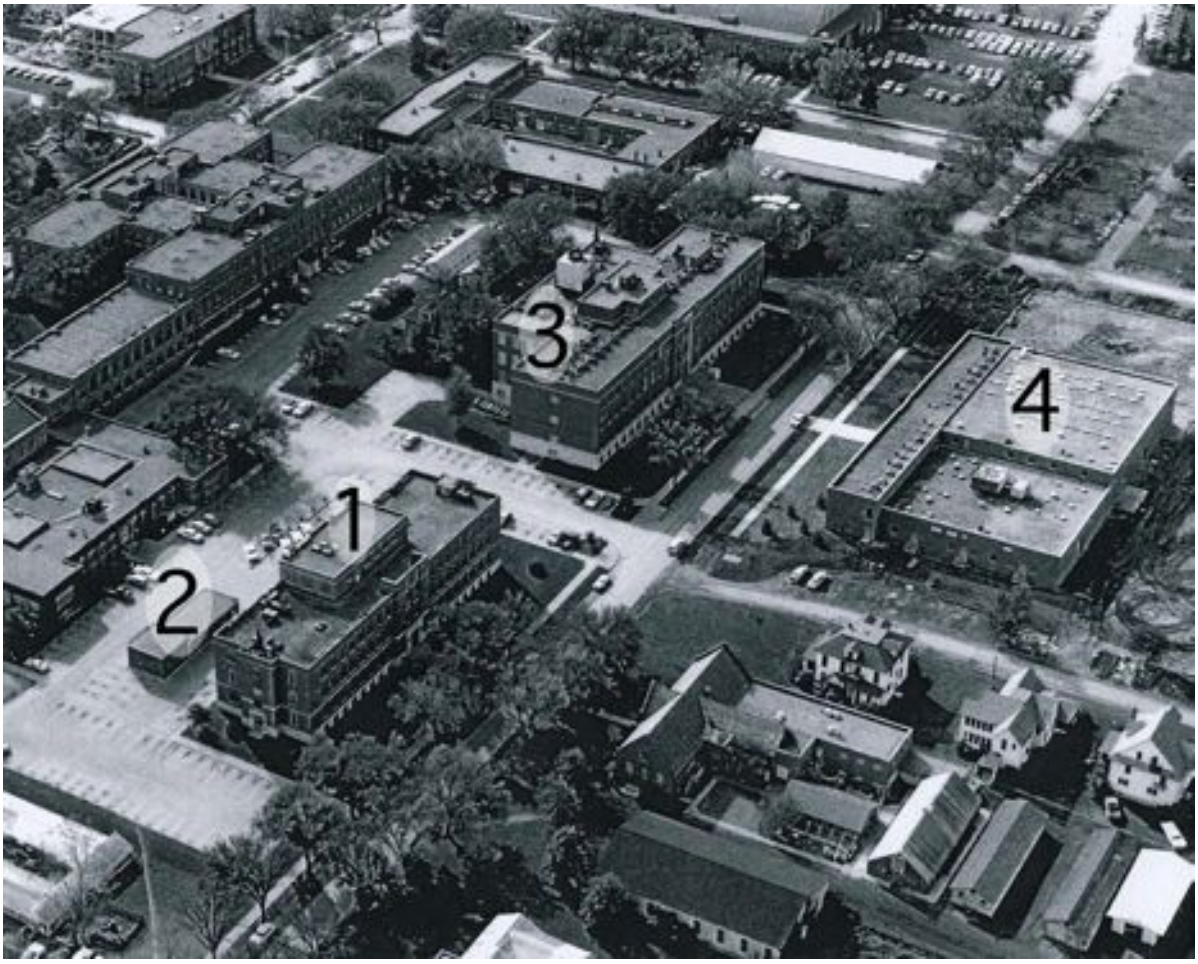
(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

This undated aerial view documents Spedding Hall (then known as the Research Laboratory) prior to the 1958-1960 construction period of Metals Development, which was constructed north across Pammel Drive. The image provides an excellent understanding of the physical relationship between Spedding (indicated by the arrow) and Wilhelm Hall (aka Metallurgy) to the east.

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Historic Images

AERIAL PHOTOGRAPH – ca. 1960



(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

This aerial photograph shows the historic relationship between the buildings of the Ames Laboratory. As seen here those buildings are:
1) Wilhelm Hall (Metallurgy Building)
2) Records Storage (Garage/Computer Garage)
3) Spedding Hall (Research Laboratory)
4) Metals Development

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

HISTORIC IMAGE – ca. 1965

(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

This undated image dates to after the 1960 completion of Metals Development, seen here at left. The image provides a good view of the physical setting and the relationship between the three primary buildings of the Ames Laboratory.

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Historic Images

PHOTOGRAPH – ca. 1978

(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

This historic image documents the building's façade in the late 1970s.

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

HISTORIC INTERIOR – 1951

(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

View of a primary hallway, shortly after the building's construction. Note the First Aid closet.

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

HISTORIC INTERIOR – 1951

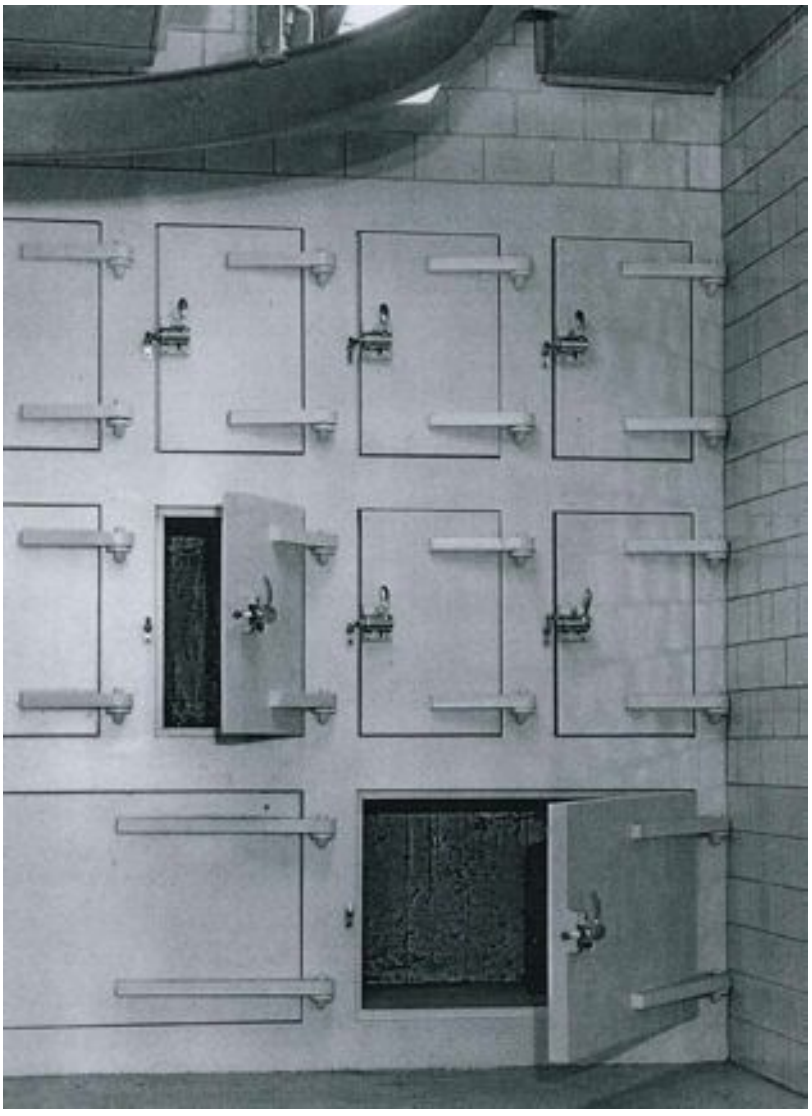
(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

View of a laboratory space, shortly after the building's construction.

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

HISTORIC INTERIOR – 1951



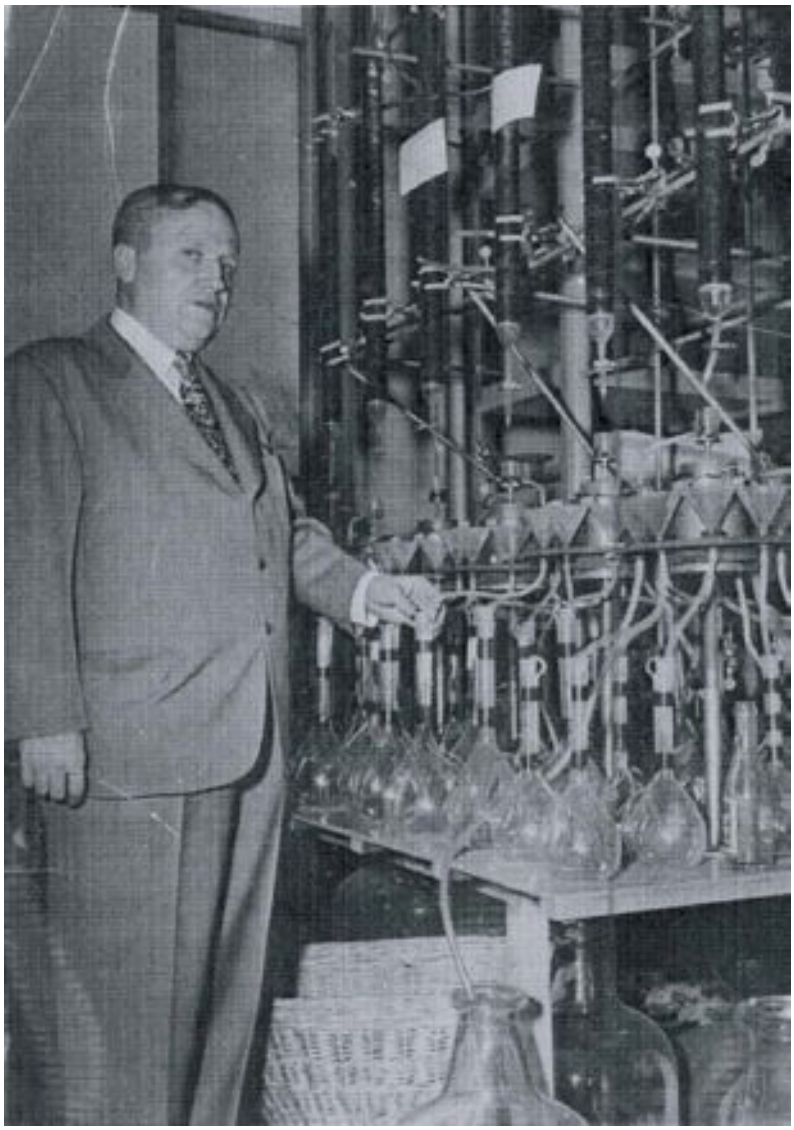
(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

View of lockers used to storage radioactive materials.

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

HISTORIC IMAGE - Undated



(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

Frank H. Spedding

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

HISTORIC IMAGE – Undated

(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

Frank H. Spedding.

Research Building	Story
Name of Property	County
Pammel Drive	Ames
Address	City

9. Major Bibliographic References

Ames Lab Files – Department of Public Affairs
Site Maps – Construction Dates – *Ames Lab Insider* (various issues) – Historic Images

Ames Lab Files – Facility Services Office
Site Maps – Current Floor Plans – Historic Floor Plans

Day, H. Summerfield. *The Iowa State University Campus and Its Buildings, 1859-1979.* Ames: Iowa State University, 1980.

Internet Resources

Source for USGS Topographic maps	www.terraserver.com www.topozone.com
Legal Description	www.iowaassessors.com
Ames Laboratory	www.external.ameslab.gov

Iowa State Special Collections, Parks Library

Spedding Papers: "Title I Report: Metals Process Development Plant for the U.S. Atomic Energy Commission at Ames Laboratory, Ames, Iowa" prepared by Tinsley, Higgins, Lighter & Lyon Architects. December 29, 1958.

"Preliminary Proposal for Metals Process Development Plant for The Ames Laboratory Ames, Iowa" prepared by Tinsley, Higgins, Lighter & Lyon Architects. January 10, 1959.

Oral Informants. Dan Kayser, Sr. Environmental Specialist, Ames Laboratory. (Various, January-February, 2009)
Mark Grootveld, Facility Services Group Manager, Ames Laboratory, (February 25, 2009)

Shank, Wesley I. *Iowa's Historic Architect's: A Biographical Dictionary.* Iowa City: University of Iowa Press, 1999.

Site Inventory Form

State Historical Society of Iowa
(November 2005)

State Inventory No. _____ ☒ New ☐ Supplemental
☐ Part of a district with known boundaries (enter inventory no.) _____
Relationship: ☐ Contributing ☐ Noncontributing
☐ Contributes to a potential district with yet unknown boundaries
National Register Status:(any that apply) ☐ Listed ☐ De-listed ☐ NHL ☐ DOE
9-Digit SHPO Review & Compliance (R&C) Number _____
☐ Non-Extant (enter year) _____

1. Name of Property

historic name Metals Development

other names/site number

2. Location

street & number Pammel Drive
city or town Ames ☐ vicinity, county Story
Legal Description: (If Rural) Township Name Washington; Township No. 83N; Range No. 24W; Section 04; Quarter __ of Quarter __
(If Urban) Subdivision _____ Block(s) _____ Lot(s) _____

3. State/Federal Agency Certification [*Skip this Section*]

4. National Park Service Certification [*Skip this Section*]

5. Classification

Category of Property (Check only one box)
☒ building(s)
☐ district
☐ site
☐ structure
☐ object

Number of Resources within Property

	If Non-Eligible Property Enter number of:	*If Eligible Property, enter number of:* Contributing	Noncontributing
	__ buildings	1	__ buildings
	__ sites	__	__ sites
	__ structures	__	__ structures
	__ objects	__	__ objects
	__ Total	1	__ Total

Name of related project report or multiple property study (Enter "N/A" if the property is not part of a multiple property examination).
Title N/A
Historical Architectural Data Base Number _____

6. Function or Use

Historic Functions (Enter categories from instructions)
05D EDUCATION; research
05B03 EDUCATION; offices
_____

Current Functions (Enter categories from instructions)
05D EDUCATION; research
05B03 EDUCATION; offices
_____

7. Description

Architectural Classification (Enter categories from instructions)
09 OTHER; mid-20th century post-modern
_____
_____
_____

Materials (Enter categories from instructions)
foundation 10B CONCRETE; poured
walls (visible material) 03 BRICK
roof _____
other _____

Narrative Description (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" representing your opinion of eligibility after applying relevant National Register criteria)

☒ Yes ☐ No ☐ More Research Recommended	A	Property is associated with significant events.
☐ Yes ☒ No ☐ More Research Recommended	B	Property is associated with the lives of significant persons.
☐ Yes ☒ No ☐ More Research Recommended	C	Property has distinctive architectural characteristics.
☐ Yes ☒ No ☐ More Research Recommended	D	Property yields significant information in archaeology or history.

County Story Address Pammel Drive Site Number
City Ames District Number

Criteria Considerations

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B Removed from its original location.
- ☐ C A birthplace or grave.
- ☐ D A cemetery
- ☐ E A reconstructed building, object, or structure.
- ☐ F A commemorative property.
- ☒ G Less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

28 SCIENCE

Significant Dates

Construction date
1961 ☐ check if circa or estimated date
Other dates, including renovation
1967, 1st Addition

Significant Person
(Complete if National Register Criterion B is marked above)

Architect/Builder

Architect
Tinsley, Higgins, Lighter & Lyon
Builder
W.A. Klinger Co.

Narrative Statement of Significance (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

9. Major Bibliographical References

Bibliography ☐ See continuation sheet for citations of the books, articles, and other sources used in preparing this form

10. Geographic Data

UTM References *(OPTIONAL)*

	Zone	*Easting*	*Northing*		*Zone*	*Easting*	*Northing*
1	15	446315	4653409	2			
3				4			

☐ See continuation sheet for additional UTM references or comments

11. Form Prepared By

name/title Alexa McDowell, Architectural Historian
organization AKAY Consulting date 02-15-09
street & number 1226 6th Street telephone 515-491-5432
city or town Boone state IA zip code 50036

ADDITIONAL DOCUMENTATION **(Submit the following items with the completed form)**

FOR ALL PROPERTIES

1. ***Map:*** showing the property's location in a town/city or township.
2. ***Site plan:*** showing position of buildings and structures on the site in relation to public road(s).
3. ***Photographs:*** representative black and white photos. If the photos are taken as part of a survey for which the Society is to be curator of the negatives or color slides, a photo/catalog sheet needs to be included with the negatives/slides and the following needs to be provided below on this particular inventory site:

Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____

☐ See continuation sheet or attached *photo & slide catalog sheet* for list of photo roll or slide entries.
☐ Photos/illustrations without negatives are also in this site inventory file.

FOR CERTAIN KINDS OF PROPERTIES, INCLUDE THE FOLLOWING AS WELL

1. ***Farmstead & District:*** (List of structures and buildings, known or estimated year built, and contributing or noncontributing status)
2. ***Barn:***
   a. A sketch of the frame/truss configuration in the form of drawing a typical middle bent of the barn.
   b. A photograph of the loft showing the frame configuration along one side.
   c. A sketch floor plan of the interior space arrangements along with the barn's exterior dimensions in feet.

State Historic Preservation Office (SHPO) Use Only Below This Line

Concur with above survey opinion on National Register eligibility: ☐ *Yes* ☐ *No* ☐ *More Research Recommended*
☐ *This is a locally designated property or part of a locally designated district.*

Comments: _____

Evaluated by (name/title): _____ *Date:* _____

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

2. Location, cont'd.

Iowa State University Campus, Ames, Story County, Iowa.

5. Classification, cont'd.

Metals Development is considered a building and counts as one resource.

7. Description

Site Description

Metals Development is sited on the north side of Pammel Drive, in the northwest section of the Iowa State University campus. Pammel is a major east-west roadway, which provides access to many of the major university buildings on that end of the campus. Metals Development is set back from the street, with a modest front lawn, sidewalk and narrow parking strip separating it from the street. A walkway connects the sidewalk to the building's primary entrance on the south. The building is bound by the Molecular Biology Building on the west and the Genetics Lab on the east, both university-owned buildings. Ames Laboratory buildings, Spedding Hall, Wilhelm Hall and TASF are all located south across Pammel Drive. A large parking lot is located behind (north) of Metals Development.

Property Description

Metals Development is a two-story brick-faced, concrete block construction on a poured concrete foundation. The rectangular building is simple in form and decorative devices, relying on the simplicity common to buildings constructed during this era for its stylistic expression. Unlike the earlier Ames Laboratory research buildings (Wilhelm and Spedding Halls), Metals Development shirks a direct expression of a Classical Revival; the only hint is found in the building's symmetry and sense of control. The use of red brick (albeit in a more modern presentation) creates a visual connection to the earlier buildings.

The façade of Metals Development is articulated in alternating, vertical bands of red brick and blocked fenestration. The blocked fenestration involves triple-lit windows at each level, surrounded by a textured wall surface in a color tint of the adjoining brick. True to its construction era, the building lacks a cornice, highlighting the overall sense of box-like form. The primary entrance is called out through the use of a two-story, gridded window above a simple, double-door (the present doors replaced the original, which were chrome and reiterated the gridding of the large window above.) The building's name is mounted in chrome letters over the window, near the roof line.

The building is entered at grade, with an entry and second set of doors (the historic chrome doors) providing access to the interior. The main vestibule, which is open to the second floor, is finished with glazed tile walls and tile floors. A staircase in the vestibule leads to a landing in front of the wall of windows over the primary entrance, then switches back to lead to the second story.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

7. Description, cont'd.

In plan Metals Development is a simple rectangle in form. The interior space on each of the two floors is defined by a major corridor running east-west through the length of the building, near its front (south). Offices and laboratories of similar size line the south side of the corridor. A service space that accommodates an elevator shaft and a staircase occupies the central core of the building. Additional office and laboratory spaces are accessed via a north-south hallway that intersects the primary corridor just west of the central core.

The bulk of the space in Metals Development is devoted to large-scale research and as such the lab spaces in this building are generally larger than those found in either Spedding or Wilhelm. As a result the floor plan for the space north of the main east-west corridor is irregular, with spaces in a variety of sizes and shapes. The 1967 machine shop addition on the building's north side is part of that irregular plan. Throughout the original building, walls are of glazed tile block, with floors finished in tile.

A second story addition to the 1967 portion of the building houses office space. That section is also concrete block with carpet over concrete floors. Subsequent expansions were made to the rear of the building in 1983 and 1985.

Integrity Considerations

Metals Development retains a high level of all seven aspects of historic integrity. The building remains on its original location and it retains its historic association with other university buildings, most significantly with Ames Laboratory buildings, Spedding Hall and Wilhelm Hall, both located south across Pammel Drive.

The building's design and materials integrity is particularly high, with no major alteration of the building's façade. Although additions have been made to the building, the first is near the fifty year window for consideration as "historic" and the function of that space is consistent with the function of the building as a whole. Although written records indicate that alteration of interior spaces were made to accommodate changing spatial requirements, those alterations do not appear to detract from the building's historic integrity. Rather the changes support the adaptability necessary to accommodate the advancements in research central to the building's function. Certainly, character-defining features, including those specific to the primary entry space and to the overall finish materials (which are indicative of the building's scientific research function), remain intact. The retention of materials and the continued functionality of spaces also speaks to the integrity of workmanship.

The high level of integrity relating to location, design, setting, materials, workmanship, and association all result in a high level of integrity of feeling, as together, these aspects assure that those who enter the building experience its historic nature.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

7. Description, cont'd.

Property History

Metals Development was constructed in 1959-1961 by the Atomic Energy Commission (later the Department of Energy) to provide additional space for research and development, particularly related to work that required large spaces that could support heavy equipment.

The history of the Ames Laboratory begins soon after the 1939 discovery of nuclear fission. With that discovery, the United States government became interested in focusing a national research effort on the development of nuclear energy. As part of that effort, Frank H. Spedding was called upon to organize and direct a research and development program that would work in tandem with the Manhattan Project's physics program. Spedding, who was a specialist in the chemistry of rare earth metals and thus well suited to the assignment, was head of the physical chemistry department as what was then Iowa State College.

Along with other university and industrial labs across the country, the group at Ames began experimenting with better ways of producing uranium. Harley Wilhelm, a metallurgist with the Ames group, headed the team that developed a process for producing large ingots of high-grade uranium at a substantially reduced cost. The Ames group produced one-third of the uranium used in the "first successful self-sustaining chain reaction initiating the controlled release of nuclear energy."

Having proved that a chain reaction could be self-sustained and controlled, the demand for pure uranium rose dramatically and the Ames group worked to help meet that demand. The work involved continual refinement of the enrichment process, including both the melting and casting of uranium; the process they developed remains in use today. In total, the Ames group produced more than 2 million pounds of uranium for the Manhattan Project, playing a significant role in the outcome of World War II.

The Atomic Energy Commission (AEC) officially established the Ames Laboratory on May 17, 1947. The Lab's purpose was "… to build up and maintain a strong group of scientists working in the fundamental sciences." At the October 1960 dedication of the Metals Development building, John A. McCone, Chairman of the U.S. Atomic Energy Commission was asked why the AEC chose Ames to fulfill the Ames Laboratory contract and he responded that "… laboratories of this type are the lengthening shadow of the individual who has the unique and unusual capacity to search into the mysteries of the problems and also to attract as a magnet, men of dedication and skill to work with him. Many years ago, long before I had anything to do with this, the Office of Scientific Research found in Professor Spedding that man. That is why this laboratory is in Ames." (Ames Lab – Public Affairs)

But long before the construction of Metals Development came the Lab's first building, the Metallurgy Building (later Wilhelm Hall), which was occupied in 1949. The Research Laboratory (aka Research Building and, later, Spedding Hall) was constructed and occupied by 1951. This pair became the

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

7. Description, cont'd.

physical center of the Ames Laboratory, with additional office and laboratory space located in the Institute for Atomic Research (also built in 1947-48 and now known as the Office and Laboratory Building) and Gilman Hall.

The earliest indication that the Atomic Energy Commission (AEC) was considering the construction of another building for the Ames Laboratory came in 1951 when the Commission requested that land be leased from the university for the construction of the Metals Development building. It was not until the spring of 1959, however, that a lease was executed for that property. Shortly after, bids for the building's construction were let and construction began that same year. The cornerstone for Metals Development was laid in October of 1960, with the building completed and in service in 1961.

Metals Development was designed by the Des Moines architectural firm of Tinsley, Higgins, Lighter & Lyon with W.A. Klinger Co. as the contractor. Tinsley, Higgins, Lighter & Lyon was a Des Moines architecture firm, which from (1948-1967) designed a total of six buildings for the Ames Laboratory, including Wilhelm Hall and Spedding Hall. The firm was known by various names during the course of its existence, with its founding partner, Vernon F. Tinsley, a former student at Iowa State College. (Day)

Vernon Tinsley was Iowa-born and worked intermittently at the well-known Iowa firm of Proudfoot, Bird & Rawson. He died in 1976. Burdette Higgins was born in Des Moines, Iowa. Like Tinsley (and many others), Higgins worked for Proudfoot, Bird & Rawson. He attended Drake University and Harvard's School of Architecture. He joined the firm of Tinsley & McBroom in 1929. He was succeeded in the firm by his son, Tom G. Higgins. Clyde W. Lighter was also Iowa-born. He received his architecture degree at the University of Minnesota after transferring there from the University of Iowa. He worked in Minnesota after graduation, but returned to his home state to work for Tinsley, McBroom & Higgins in 1938. He became a partner in the firm in 1945. Lighter died in 1984. (Shank)

The firm is responsible for the design of the following buildings on the Iowa State University Campus. (Shank: 165)

Building	Date	Notes
Computer Garage (Records Storage)	1948	Tinsley, Higgins & Lighter
Synchrotron Building	1948-1949	Tinsley, Higgins & Lighter
Metallurgy Building (Wilhelm Hall)	1947-1949	Tinsley, Higgins & Lighter
Research Building (Spedding Hall)	1949-1951	Tinsley, Higgins & Lighter
Women's Gymnasium	1940-1941	Tinsley, McBroom & Higgins
Warehouse & Shop	1965-1966	Tinsley, Higgins, Lighter & Lyon
Maintenance Shop	1966-1967	Tinsley, Higgins, Lighter & Lyon
Metals Development	1966-1967	Tinsley, Higgins, Lighter & Lyon

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

7. Description, cont'd.

Other designs by the firm include: (Shank: 165)

Building	Location	Date	Notes
Ames High School (City Hall)	Ames	1938	Tinsley, McBroom & Higgins
Des Moines Bankers Life Insurance Bldg.	Des Moines	1939	Tinsley, McBroom & Higgins
Robert Foster House	Ottumwa	1933	Tinsley, McBroom & Higgins
Dr. W.C. Newell House	Ottumwa	1933	Tinsley, McBroom & Higgins
United Benefit Life Office Bldg.	Omaha, NE	1942	Tinsley, McBroom & Higgins

According the firm's "Title I Report" which was submitted to the U.S. Atomic Energy Commission at Ames Laboratory on December 29, 1958, Metals Development would consist of three general areas: laboratory, pilot plant and shop areas. Plans indicated that the new building would connect to the existing pipe and material transfer tunnel running under Pammel Drive from the Research Building.

As indicated, Metals Development was built to allow for an expansion in research, work that required large spaces that could carry a heavy weight load. Examples of such equipment was an electron-beam metal furnace that was installed in Metals Development in 1961 and a 700-ton extrusion press used to extrude copper billets. Records indicate that the equipment allowed the Ames to move into a new area of research related to the fabrication of new metals.

In 1967 a machine shop addition on the north of the building (also designed by Tinsley, Higgins, Lighter & Lyon with the contracting work directed by James Thompson & Sons) was completed. Two more additions, including the second story office area at the northwest corner of the building, were made in the 1983 and 1985.

Although the Ames Laboratory's early history may be most intimately linked to the uranium program of the war years, the facility's research broadened over the ensuring years and became no less significant in the scientific world. Under the continued influence of Frank Spedding and Harley Wilhelm, the scientists of the Ames Lab directed their efforts in a variety of areas including the development of Iowa's first nuclear reactor, the Iowa State Teaching Reactor, which "went critical" on October 19, 1959. Today, Ames' mission focus is on materials science, engineering, analytical instrumentation and chemical sciences that provides expertise to the Department of Energy (DOE) laboratory system in the areas of energy and environmental improvement. Ames' core capabilities are in Condensed Matter Physics and Materials Science, Chemical and Molecular Science and Applied Materials Science and Engineering; included in these is the computational support needed to carry out its mission. Ames operates the Materials Preparation Center (MPC), an Office of Science Specialized Research Center, which provides capabilities in preparation, purification, fabrication and characterization of materials in support of R&D programs throughout the world. Ames also collaborates with the DOE's applied energy technology, fossil energy and nonproliferation programs.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

7. Description, cont'd.

A measure of the Lab's success and acclaim can be taken with the following, much-abbreviated list of its achievements.

> The Ames Project received the Army/Navy E Flag for Excellence in Production on October 12, 1945, signifying two-and-a-half years of excellence in industrial production of metallic uranium as a vital war material. Iowa State is unique among educational institutions to have received this award for outstanding service, an honor normally given to industry.
>
> Spedding becomes a member of the National Academy of Sciences in 1956. In 1967, Iowa State proudly claimed three out of the four Iowa scientists who at that time were National Academy Sciences members: Henry Gilman, Jay Lush, and Frank Spedding.
>
> In 1957 the Lab received the Chemical Engineering Achievement Award for research, development and efficient application of chemical engineering principles and processes in the recovery of rare earth metals.
>
> In 1959 members of Nikita Khruschev's party visit Ames Lab during Khruschev's visit to Iowa State University.
>
> In 1961 Spedding receives Iowa's Distinguished Citizen's Award from Governor Erbe.
>
> In 1967 Spedding was one of three to receive the Atomic Energy Commission Citation for outstanding service in the nation's atomic energy program.

8. Statement of Significance

Metals Development is considered eligible for listing on the National Register of Historic Places under Criterion A in its association with the history of science. The building is considered significant at the local and state level, although it is believed that additional research and contextual development may support a case for national significance.

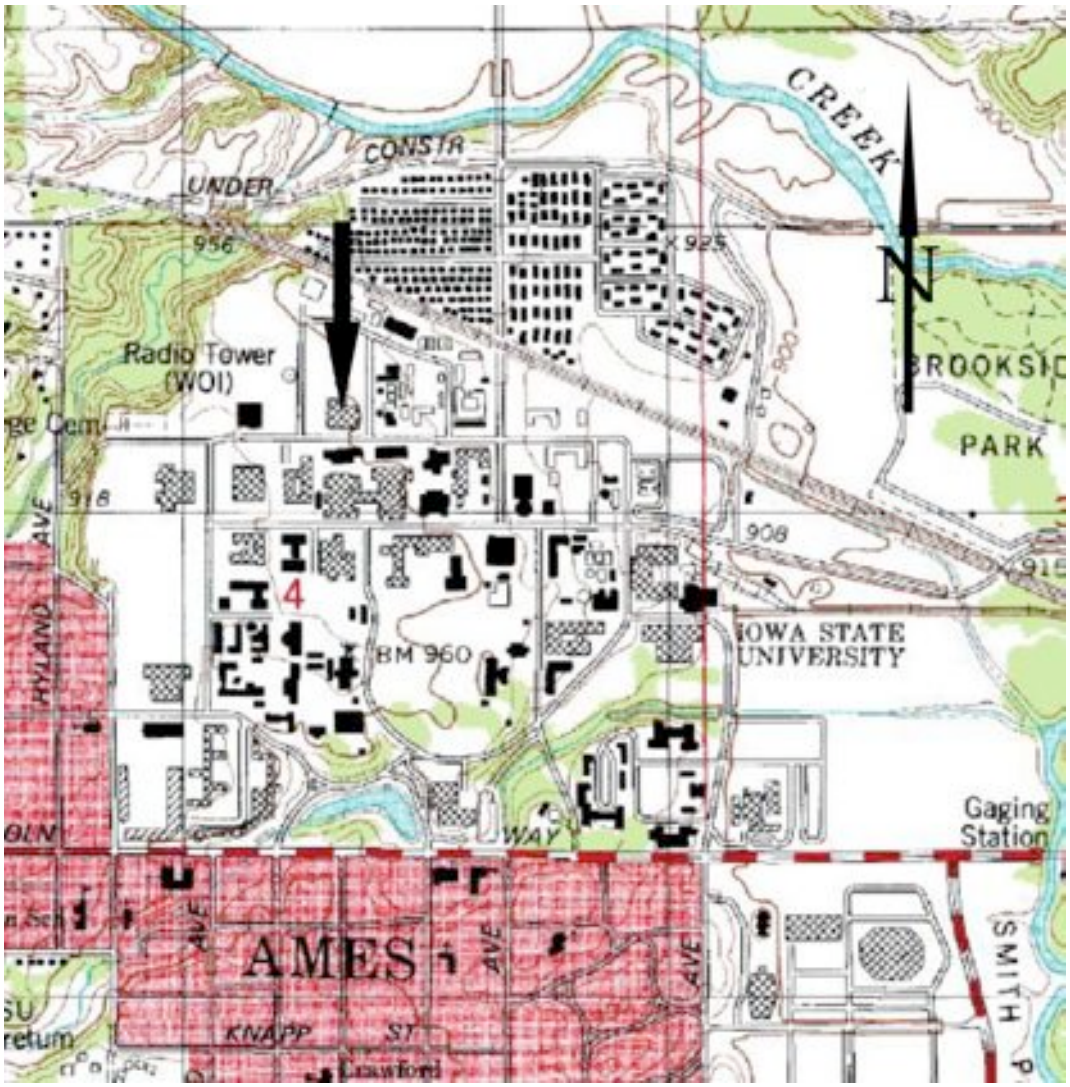
Metals Development is a primary building associated with the work of the Ames Laboratory spanning nearly fifty years. Although the research for which the Lab is most commonly associated, that of uranium production and purification related to the Manhattan Project, occurred prior to the construction of Metals Development, the building represents the work of the Lab as a whole. In addition, scientific research in the areas of nuclear energy and rare earth metals continued after the Manhattan Project era. Indeed, much appears to have grown out of the discoveries of that period and that work is directly associated with Metal Development, particularly those areas of investigation which drove the construction of the building and dictated its design.

Metals Development is subject to Criterion Consideration G, which allows for the consideration of a property "achieving significance within the past 50 years if it is of exceptional importance." Due to the significance of the work of the Ames Laboratory and the direct correlation of the research conducted in the Metals Development building to that work, the property bears consideration for listing on the National Register of Historic Places prior to reaching the standard fifty-year threshold.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Maps

USGS 7.5 MINUTE TOPOGRAPHIC MAP – AMES QUAD (1993)



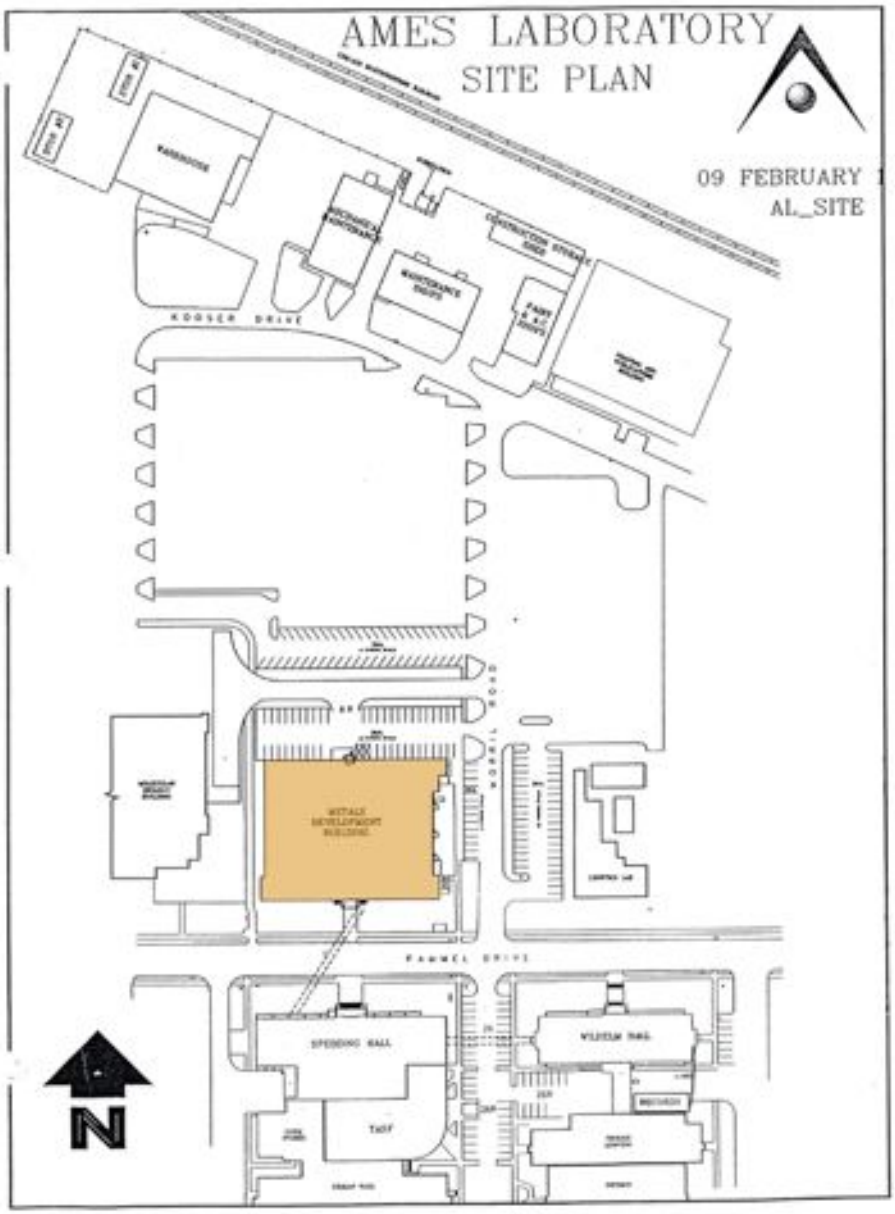
(MAP SOURCE: www.terraserver-usa.com)

The location of Metals Development is indicated by the arrow.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Maps

SITE MAP – ca. 2007



(MAP SOURCE: Ames Laboratory Files – Facilties Services – ca. 2007)

The location of Metals Development is indicated by the orange shading.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation - Photographs

View of the façade of Metals Development (south elevation), looking northeast across Pammel Drive.

(All images by AKAY Consulting – February 25, 2009)

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation - Photographs

View of the building's east elevation, looking to the northwest. The 1967 addition is seen here on the north end of the building. The addition begins at the stepped section.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation - Photographs

View of the rear (north) elevation, looking to the southeast.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation - Photographs

View of the building's primary (south) entrance. The steel doors are a later version, although the historic chrome doors are retained on the interior entry (see following image.)

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

INTERIOR

View inside the primary entrance looking to the south. Note the use of glazed tile, stainless steel entrance doors and the view to Spedding Hall across Pammel Drive.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

INTERIOR

View of first floor hallway.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

INTERIOR

View of second floor hallway.

11. Additional Documentation – Photographs

INTERIOR

View of hallway in the second story addition.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

INTERIOR

View of a laboratory space.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

INTERIOR

View of a laboratory space.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

INTERIOR

View of a laboratory space.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

INTERIOR

View of the laboratory space on the north side of the building. This space is part of the 1967-68 shops addition; note that the exterior wall of the original building is visible in this view.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

INTERIOR

The building's freight elevator is located to provide easy access to and from the subterranean tunnel that connects Metals Development to Spedding Hall.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

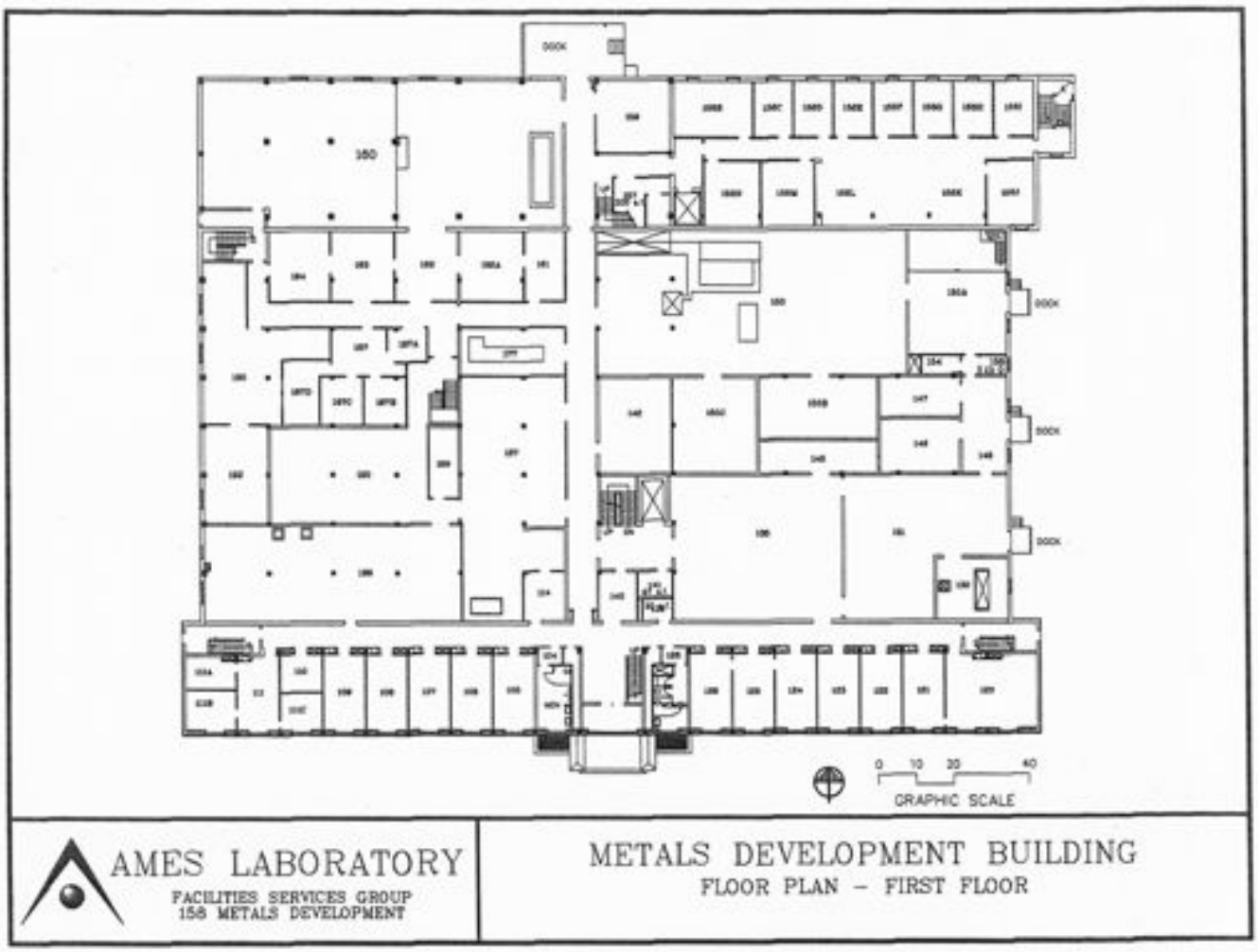
INTERIOR

View of the tunnel running under Pammel Drive to connect Metals Development on the north to Spedding Hall on the south.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Plans - ca. 2007

FIRST FLOOR PLAN

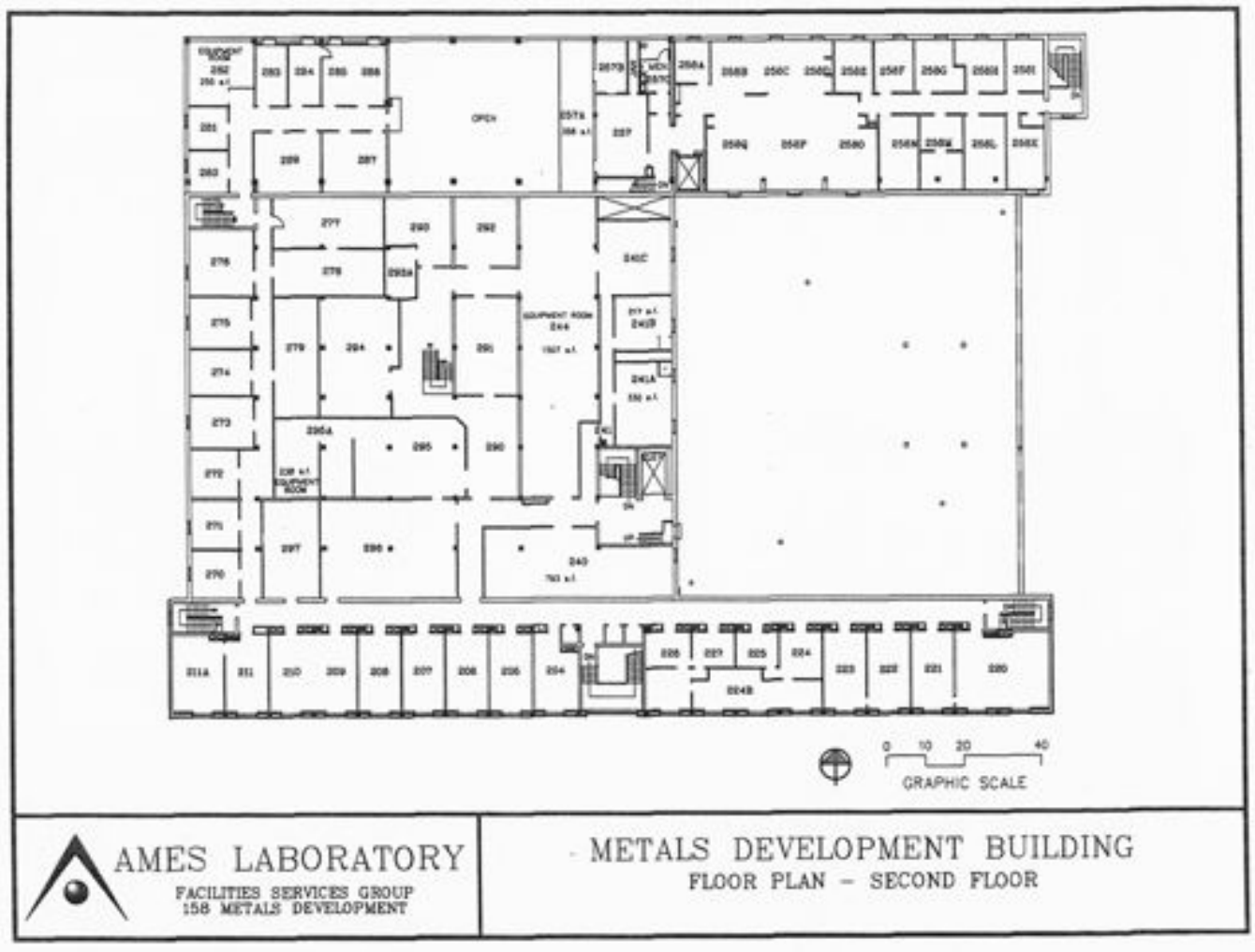


(MAP SOURCE: Ames Laboratory Files – Facilties Services)

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Plans – ca. 2007

SECOND FLOOR PLAN

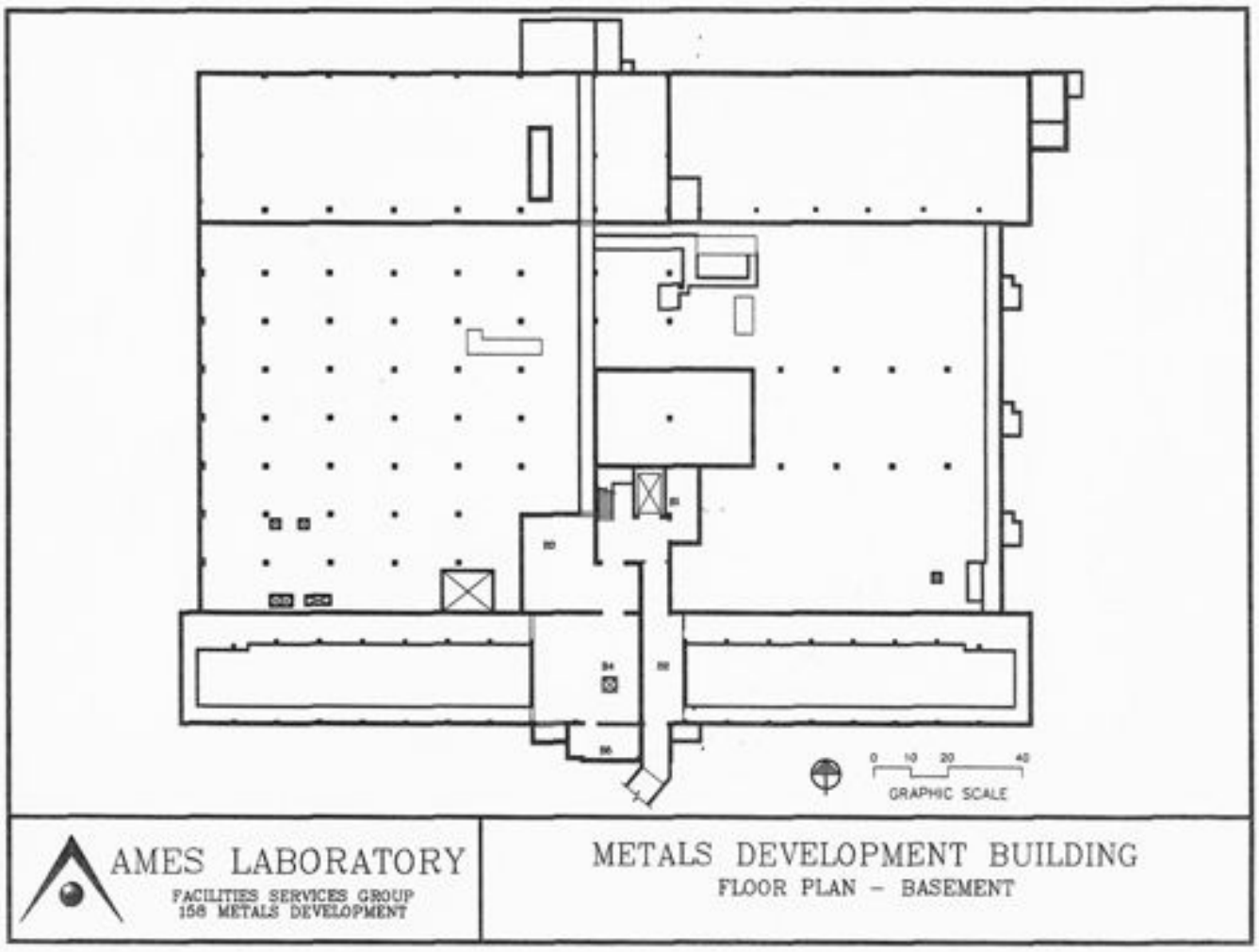


(MAP SOURCE: Ames Laboratory Files – Facilties Services)

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Plans – ca. 2007

BASEMENT PLAN

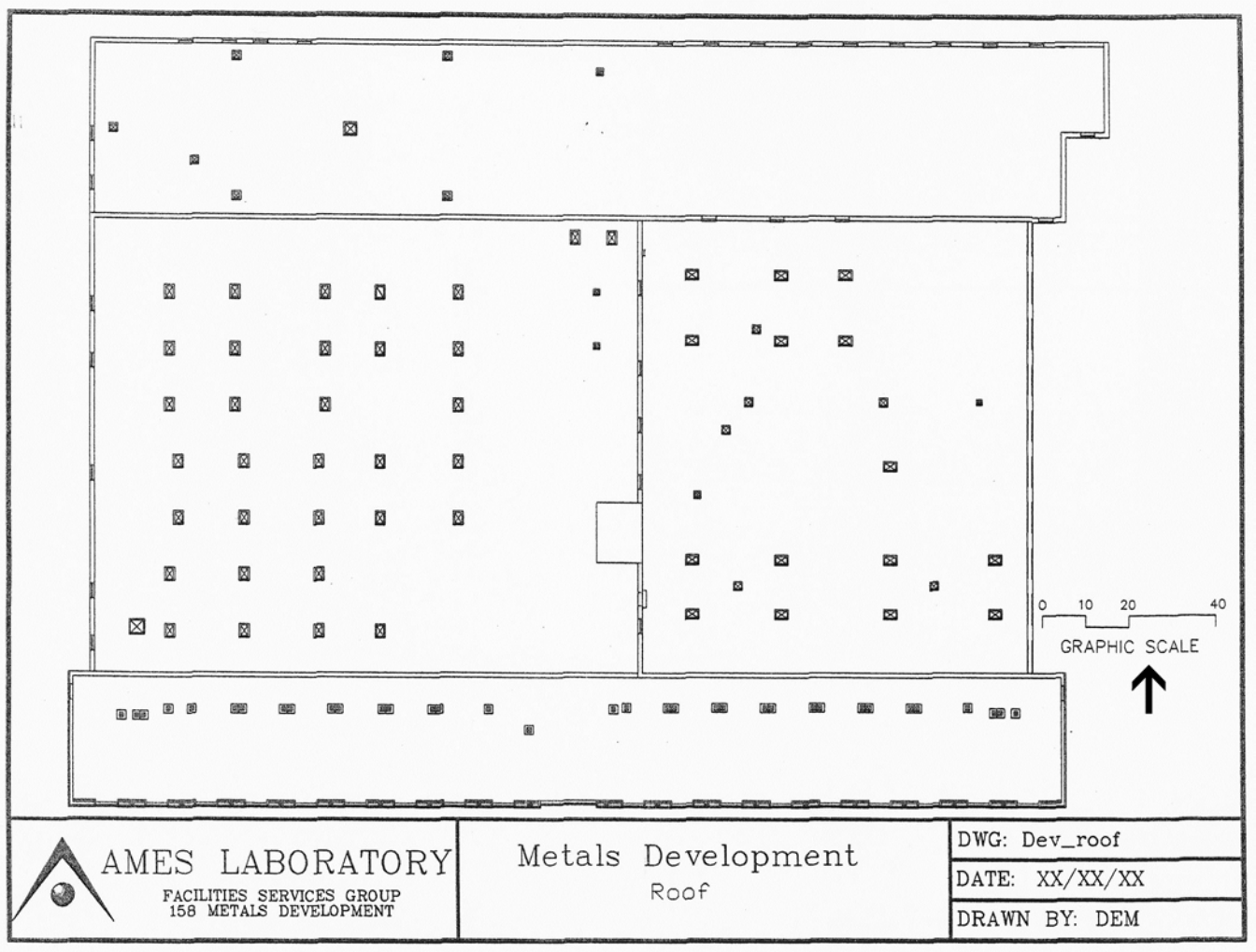


(MAP SOURCE: Ames Laboratory Files – Facilties Services)

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Plans – ca. 2007

ROOF PLAN



(MAP SOURCE: Ames Laboratory Files – Facilties Services)

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

HISTORIC IMAGE – ca. 1959

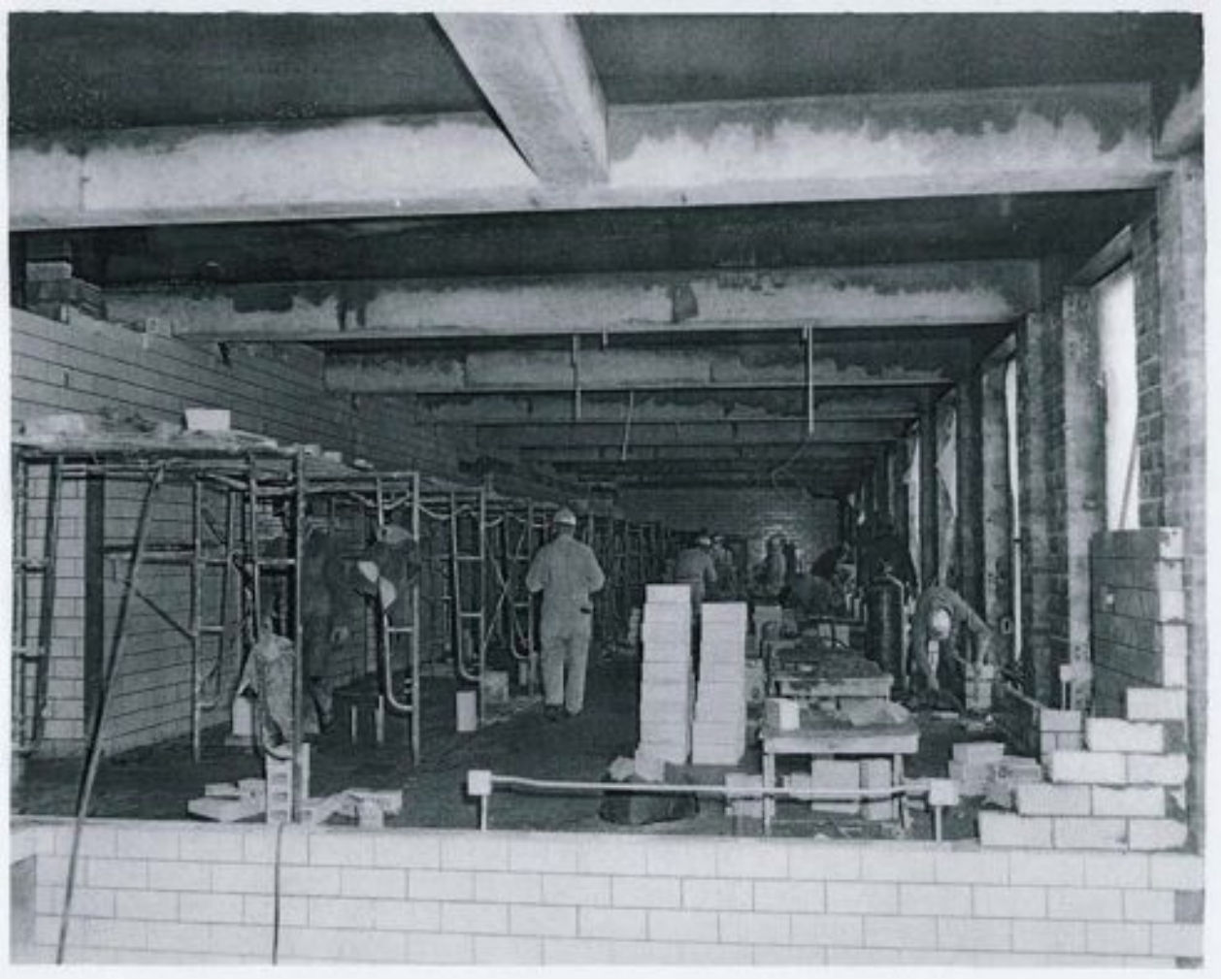
(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

View of Metals Development with construction well underway. This view, which was likely taken from the roof of Spedding Hall (Research Building), looks north across Pammel Drive at the construction site and beyond to the post-war Quonset huts that spread across the north section of campus. The last of those temporary structures was removed in ca. 2000.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

HISTORIC IMAGE – ca. 1959



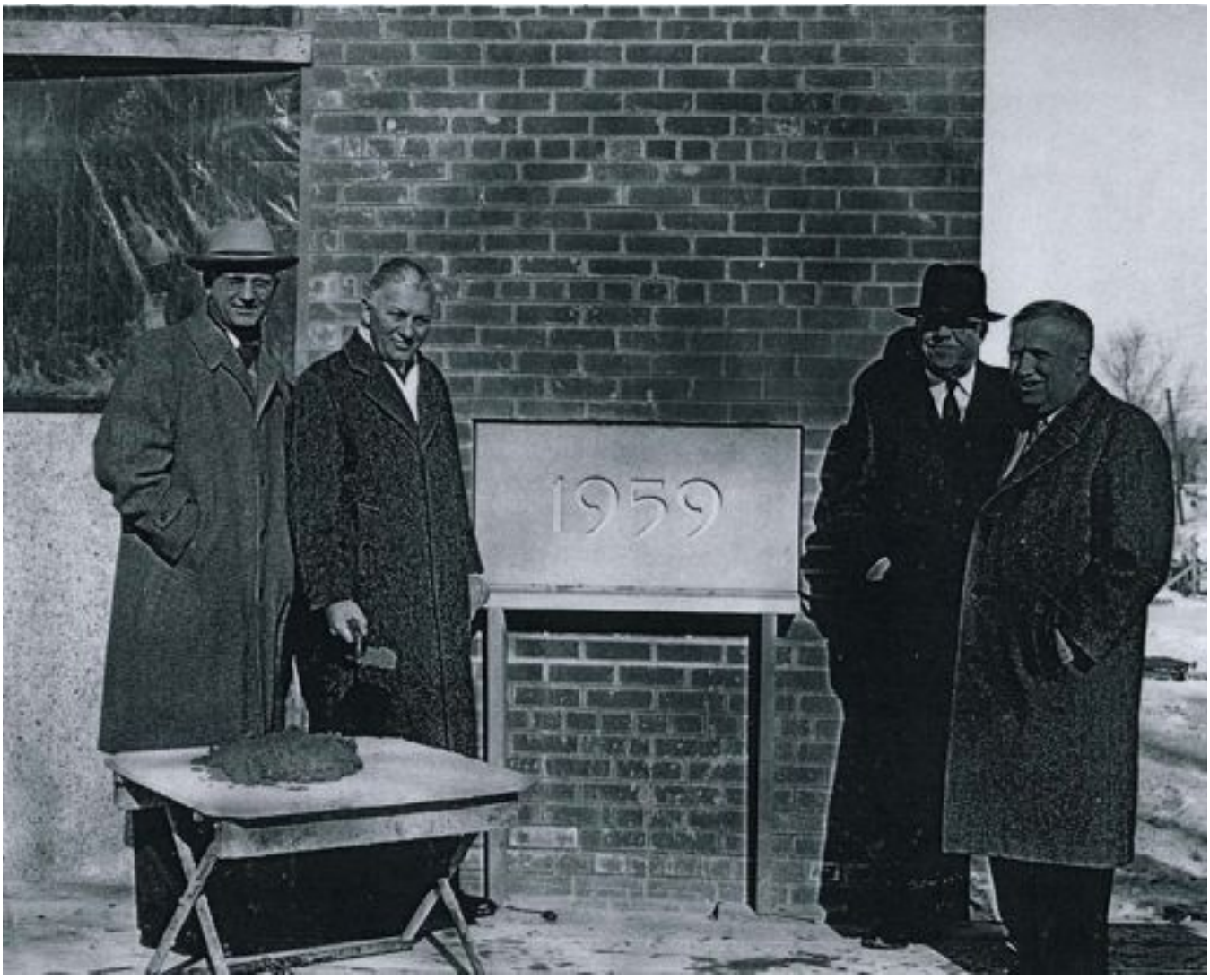
(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

Interior construction view. Note the reinforced concrete beams and the structural tile walls.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

HISTORIC IMAGE – 1959



(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

Laying of the cornerstone in October of 1960. Frank H. Spedding, Director of the Ames Laboratory is pictured at far right.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

HISTORIC IMAGE – ca. 1960

View of the completed building, looking northeast across Pammel Drive.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

HISTORIC IMAGE – ca. 1960

(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

View of the newly completed building, looking northwest from near Pammel Drive.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

HISTORIC IMAGE – ca. 1960

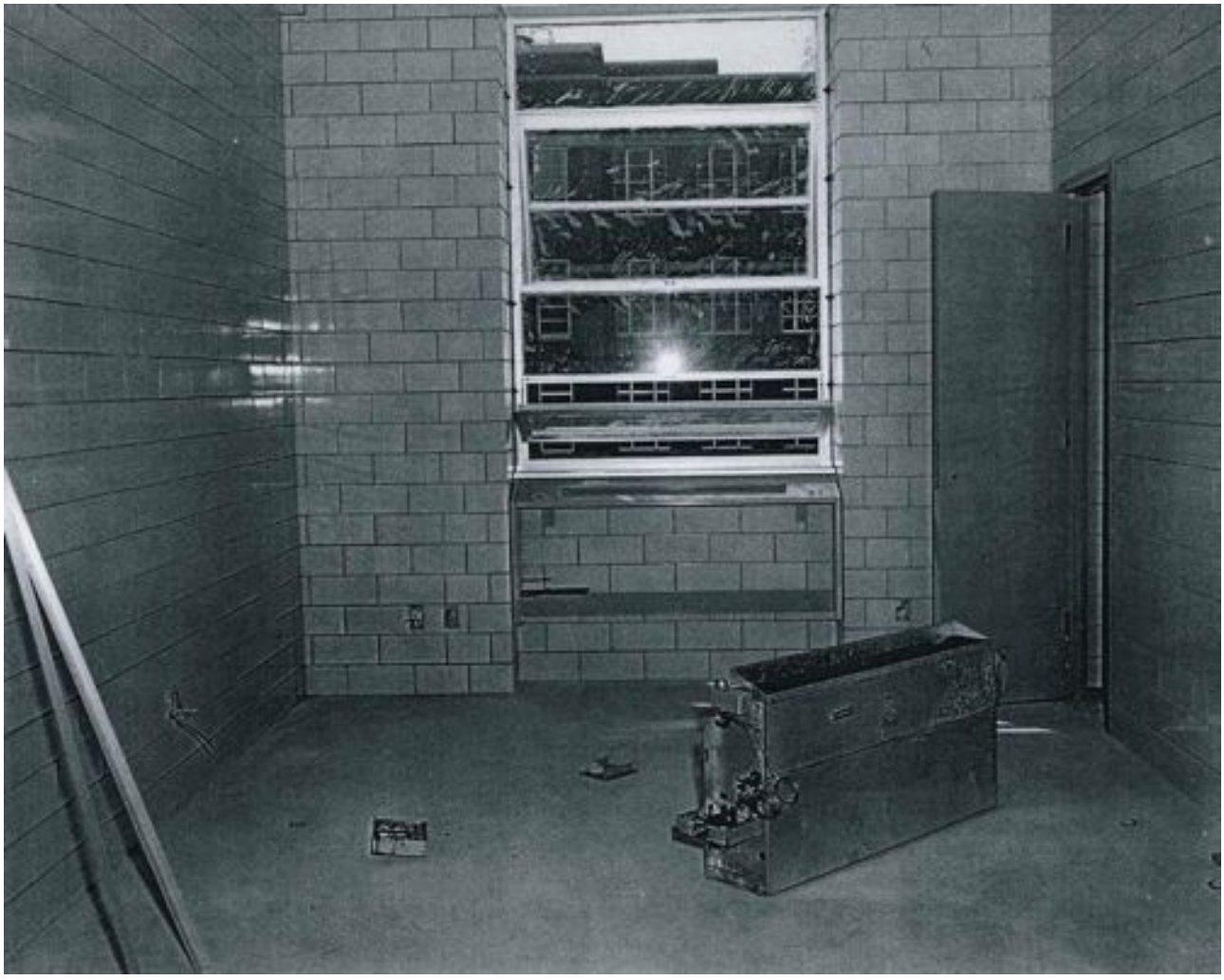
(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

As seen here, the typical hallway looked much the same historically as it does today. The retention of original dimensions, glazed tile walls, dropped ceilings and steel doors accounts for the high level of historic integrity on the building's interior.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

HISTORIC IMAGE – ca. 1960



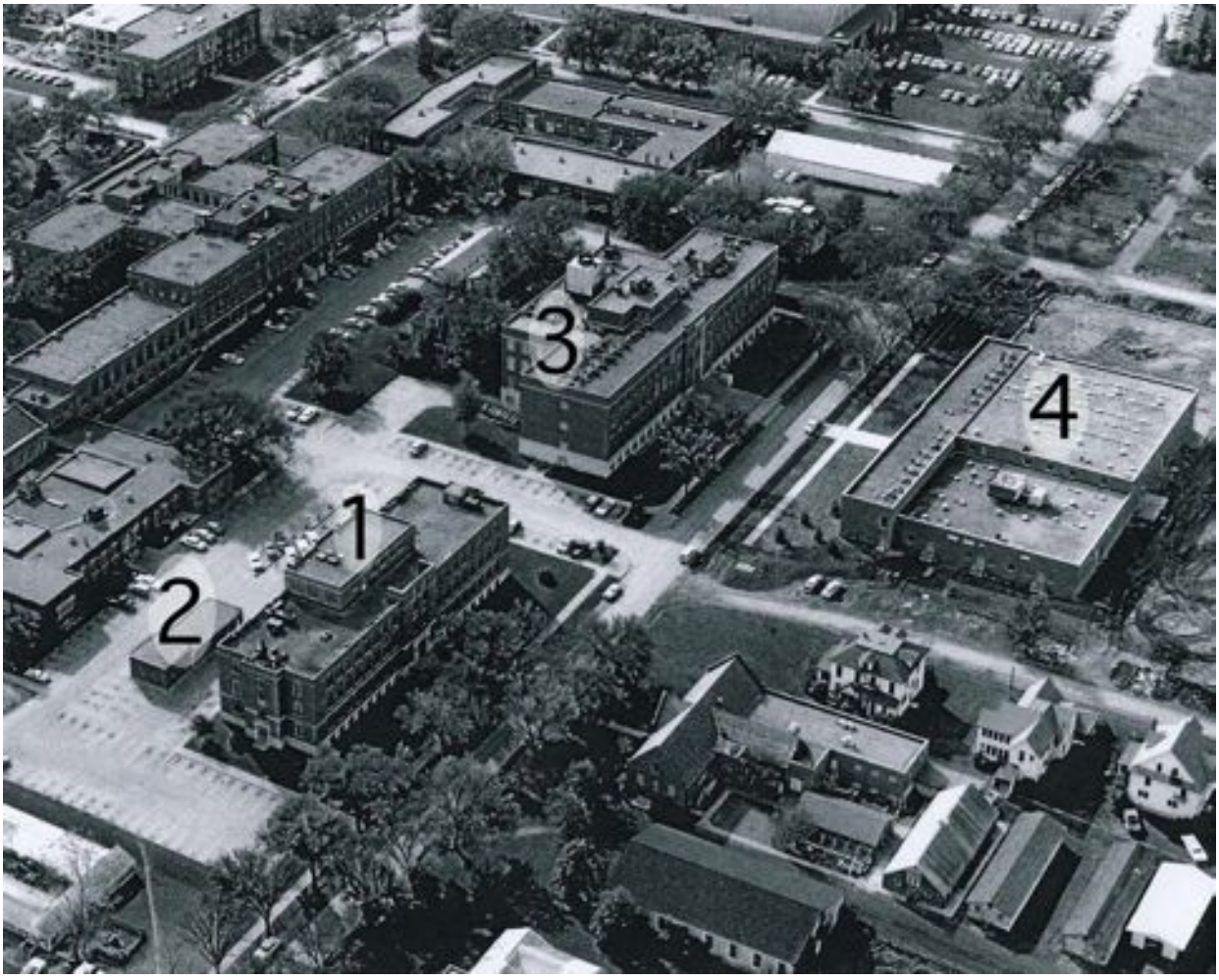
(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

Like the hallways, the offices and lab spaces in Metals Development retain a high level of historic integrity due to the retention of original plan, ceiling heights, and materials. Note that Wilhelm Hall is visible through the window.

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Historic Photographs

AERIAL PHOTOGRAPH – ca. 1960



(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

This aerial photograph shows the historic relationship between the buildings of the Ames Laboratory. As seen here those buildings are:
1) Wilhelm Hall (Metallurgy Building)
2) Records Storage (Garage/Computer Garage)
3) Spedding Hall (Research Building)
4) Metals Development

Metals Development	Story
Name of Property	County
Pammel Drive	Ames
Address	City

9. Major Bibliographic References

Ames Lab Files – Department of Public Affairs
Site Maps – Construction Dates – *Ames Lab Insider* (various issues) – Historic Images

Ames Lab Files – Facility Services Office
Site Maps – Current Floor Plans – Historic Floor Plans

Day, H. Summerfield. *The Iowa State University Campus and Its Buildings, 1859-1979.* Ames: Iowa State University, 1980.

Internet Resources

Ames Laboratory Website	www.external.ameslab.gov
60th Anniversary Timeline	www.external.ameslab.gov/60thanniversary/1990.html
USGS Topographic maps	www.terraserver.com
	www.trails.com
Legal Description	www.iowaassessors.com

Iowa State Special Collections, Parks Library

Spedding Papers: "Title I Report: Metals Process Development Plant for the U.S. Atomic Energy Commission at Ames Laboratory, Ames, Iowa" prepared by Tinsley, Higgins, Lighter & Lyon Architects. December 29, 1958.

"Preliminary Proposal for Metals Process Development Plant for The Ames Laboratory Ames, Iowa" prepared by Tinsley, Higgins, Lighter & Lyon Architects. January 10, 1959.

Oral Informants. Dan Kayser, Sr. Environmental Specialist, Ames Laboratory. (Various, January-February, 2009)
Mark Grootveld, Facility Services Group Manager, Ames Laboratory, (February 25, 2009)

Shank, Wesley I. *Iowa's Historic Architect's: A Biographical Dictionary.* Iowa City: University of Iowa Press, 1999.

6. APPENDIX B: Reconnaissance Level Iowa Site Inventory Forms

- 6.1 Records Storage
- 6.2 Mechanical Maintenance
- 6.3 Warehouse
- 6.4 Construction Storage
- 6.5 Maintenance Shops
- 6.6 Paint & AC
- 6.7 Storage 1
- 6.8 Storage 2
- 6.9 Storage 3
- 6.10 TASF

Site Inventory Form

State Historical Society of Iowa
(November 2005)

State Inventory No. _____ ☒ New ☐ Supplemental
☐ Part of a district with known boundaries (enter inventory no.) _____
Relationship: ☐ Contributing ☐ Noncontributing
☐ Contributes to a potential district with yet unknown boundaries
National Register Status:(any that apply) ☐ Listed ☐ De-listed ☐ NHL ☐ DOE
9-Digit SHPO Review & Compliance (R&C) Number _____
☐ Non-Extant (enter year) _____

1. Name of Property

historic name Garage

other names/site number Computer Garage, Records Storage

2. Location

street & number Pammel Drive
city or town Ames ☐ vicinity, county Story
Legal Description: (If Rural) Township Name Township No. Range No. Section Quarter of Quarter
Washington 83N 24W 04 __ __
(If Urban) Subdivision _____ Block(s) _____ Lot(s) _____

3. State/Federal Agency Certification [*Skip this Section*]

4. National Park Service Certification [*Skip this Section*]

5. Classification

Category of Property (Check only one box)
☒ building(s)
☐ district
☐ site
☐ structure
☐ object

Number of Resources within Property

If Non-Eligible Property Enter number of:		*If Eligible Property, enter number of:* Contributing	Noncontributing
1	buildings	__	__ buildings
__	sites	__	__ sites
__	structures	__	__ structures
__	objects	__	__ objects
1	Total	__	__ Total

Name of related project report or multiple property study (Enter "N/A" if the property is not part of a multiple property examination).
Title N/A
Historical Architectural Data Base Number _____

6. Function or Use

Historic Functions (Enter categories from instructions)
99 OTHER; garage
99 OTHER; computer center
_____

Current Functions (Enter categories from instructions)
99 OTHER; records storage
_____
_____

7. Description

Architectural Classification (Enter categories from instructions)
01 NO STYLE
_____
_____
_____

Materials (Enter categories from instructions)
foundation 10B CONCRETE; poured
walls (visible material) 03 BRICK
roof _____
other _____

Narrative Description (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" representing your opinion of eligibility after applying relevant National Register criteria)

☐ Yes ☒ No ☐ More Research Recommended	A	Property is associated with significant events.
☐ Yes ☒ No ☐ More Research Recommended	B	Property is associated with the lives of significant persons.
☐ Yes ☒ No ☐ More Research Recommended	C	Property has distinctive architectural characteristics.
☐ Yes ☒ No ☐ More Research Recommended	D	Property yields significant information in archaeology or history.

County Story Address Pammel Drive Site Number
City Ames District Number

Criteria Considerations

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B Removed from its original location.
- ☐ C A birthplace or grave.
- ☐ D A cemetery
- ☐ E A reconstructed building, object, or structure.
- ☐ F A commemorative property.
- ☐ G Less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

_____

_____

Significant Dates

Construction date

1948 ☐ check if circa or estimated date

Other dates, including renovation

_____

Significant Person

(Complete if National Register Criterion B is marked above)

_____

_____

Architect/Builder

Architect

Tinsley Higgins & Lighter

Builder

_____

Narrative Statement of Significance (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

9. Major Bibliographical References

Bibliography ☐ See continuation sheet for citations of the books, articles, and other sources used in preparing this form

10. Geographic Data

UTM References *(OPTIONAL)*

	Zone	*Easting*	*Northing*		*Zone*	*Easting*	*Northing*
1	15	446421	4653307	2			
3				4			

☐ See continuation sheet for additional UTM references or comments

11. Form Prepared By

name/title Alexa McDowell, Architectural Historian
organization AKAY Consulting date 02-05-09
street & number 1226 6th Street telephone 515-491-5432
city or town Boone state IA zip code 50036

ADDITIONAL DOCUMENTATION **(Submit the following items with the completed form)**

FOR ALL PROPERTIES

1. ***Map:*** showing the property's location in a town/city or township.
2. ***Site plan:*** showing position of buildings and structures on the site in relation to public road(s).
3. ***Photographs:*** representative black and white photos. If the photos are taken as part of a survey for which the Society is to be curator of the negatives or color slides, a photo/catalog sheet needs to be included with the negatives/slides and the following needs to be provided below on this particular inventory site:

   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____

   ☐ See continuation sheet or attached *photo & slide catalog sheet* for list of photo roll or slide entries.
   ☐ Photos/illustrations without negatives are also in this site inventory file.

FOR CERTAIN KINDS OF PROPERTIES, INCLUDE THE FOLLOWING AS WELL

1. ***Farmstead & District:*** (List of structures and buildings, known or estimated year built, and contributing or noncontributing status)
2. ***Barn:***
   a. A sketch of the frame/truss configuration in the form of drawing a typical middle bent of the barn.
   b. A photograph of the loft showing the frame configuration along one side.
   c. A sketch floor plan of the interior space arrangements along with the barn's exterior dimensions in feet.

State Historic Preservation Office (SHPO) Use Only Below This Line

Concur with above survey opinion on National Register eligibility: ☐ *Yes* ☐ *No* ☐ *More Research Recommended*
☐ *This is a locally designated property or part of a locally designated district.*

Comments: _____

Evaluated by (name/title): _____ *Date:* _____

Garage	Story
Name of Property	County
Pammel Drive	Ames
Address	City

2. Location, cont'd.

Iowa State University Campus, Ames, Story County, Iowa.

5. Classification, cont'd.

Records Storage is considered a building and counts as one resource.

7. Description

Site Description

Records Storage is located in the northwest section of the Iowa State University campus, just south of Pammel Drive. The building sets between Wilhelm Hall (on the north) and the Zaffarano Physics Addition (on the south); its south wall is attached to Zaffarano. An elevated dock ramp, connecting Wilhelm and Zaffarono, is located immediately west of Records Storage. A university parking area is located immediately to the east.

Property Description

Records Storage is a small, one story brick structure constructed on a concrete foundation. The building's east end is elevated several feet higher that the remainder of the structure. The building's roof is flat. Originally a freestanding building, Records Storage is now attached to Zaffarano on the south, though there are no interior openings between the two buildings.

The north elevation of Records Storage currently features a series of five windows set between pedestrian entrances – one on the east and the west ends of that elevation. A single window is set into the west elevation. With the exception of a simple, two-board running fascia, the building lacks applied adornment.

The building's interior is divided into two primary spaces, a small office area on the west end and the larger room now used for the storage of records related primarily to the research conducted by the personnel of the Ames Laboratory. In addition, a small area was set aside on the east end of the building to accommodate men and women's restroom facilities. The interior has been renovated, with all wall, ceiling, and floor services covered in contemporary materials.

Integrity Considerations

Records Storage is a well-maintained building, which stands on its original site and retains its original form and construction materials. However, those features most closely associated with the building's original function (the overhead garage doors) have been removed and replaced by windows, its historic integrity as it relates to design is significantly compromised. Because the building is not considered eligible for listing on the National Register of Historic Places, further analysis of its integrity is not required at this time.

Garage	Story
Name of Property	County
Pammel Drive	Ames
Address	City

7. Description, cont'd.

Property History

The history of the Ames Laboratory begins soon after the 1939 discovery of nuclear fission. With that discovery, the United States government became interested in focusing a national research effort on the development of nuclear energy. As part of that effort, Frank H. Spedding was called upon to organize and direct a research and development program that would work in tandem with the Manhattan Project's physics program. Spedding, who was a specialist in the chemistry of rare earth metals and thus well suited to the assignment, was head of the physical chemistry department as what was then Iowa State College.

Along with other university and industrial labs across the country, the group at Ames began experimenting with better ways of producing uranium. Harley Wilhelm, a metallurgist with the Ames group, headed the team that developed a process for producing large ingots of high-grade uranium at a substantially reduced cost. The Ames group produced one-third of the uranium used in the "first successful self-sustaining chain reaction initiating the controlled release of nuclear energy."

Having proved that a chain reaction could be self-sustained and controlled, the demand for pure uranium rose dramatically and the Ames group worked to help meet that demand. The work involved continual refinement of the enrichment process, including both the melting and casting of uranium; the process they developed remains in use today. In total, the Ames group produced more than 2 million pounds of uranium for the Manhattan Project, playing a significant role in the outcome of World War II.

The Atomic Energy Commission (AEC) officially established the Ames Laboratory on May 17, 1947. The Lab's purpose was "… to build up and maintain a strong group of scientists working in the fundamental sciences." At the October 1960 dedication of the Metals Development building, John A. McCone, Chairman of the U.S. Atomic Energy Commission was asked why the AEC chose Ames to fulfill the Ames Laboratory contract and he responded that "… laboratories of this type are the lengthening shadow of the individual who has the unique and unusual capacity to search into the mysteries of the problems and also to attract as a magnet, men of dedication and skill to work with him. Many years ago, long before I had anything to do with this, the Office of Scientific Research found in Professor Spedding that man. That is why this laboratory is in Ames."

But long before the construction of Metals Development came the Lab's first building, the Metallurgy Building (later Wilhelm Hall), which was occupied in 1949. The Research Laboratory (aka Research Building and, later, Spedding Hall) was constructed and occupied by 1951. This pair became the physical center of the Ames Laboratory, with additional office and laboratory space located in the Institute for Atomic Research (also built in 1947-48 and now known as the Office and Laboratory Building) and Gilman Hall. Various secondary structures, such as Mechanical Maintenance, the

Garage	Story
Name of Property	County
Pammel Drive	Ames
Address	City

7. Description, cont'd.

Maintenance Shop, Records Storage, and the Warehouse were added from the late 1940s through the 1990s. These buildings were constructed to provide support services and general storage space to the research and development efforts conducted in the facility's primary structures.

According to the Ames Lab files, Records Storage was built in 1948 for the purpose of providing garage space for the vehicular equipment of the Ames Laboratory. The 1948 construction date is supported by the Summerfield Day report, which further indicates that the Atomic Energy Commission funded construction of Records Storage and that the building was designed cooperatively by Tinsley, Higgins, & Lighter and the Ames Lab Building & Engineering Services. The building was completed in the same year as Wilhelm Hall (Metallurgy), which, along with five other buildings of the Ames Laboratory, was designed by Tinsley, Higgins, & Lighter of Des Moines.

Records Storage was constructed to function as a garage and as such featured four bays with large overhead doors. By ca. 1960 the building was converted to computer space and became referred to as the "Computer Garage." To accommodate the change in function, the original overhead doors were removed and windows set into the bays. Most recently it is dedicated to the storage of research records.

Although the Ames Laboratory's early history may be most intimately linked to the uranium program of the war years, the facility's research broadened over the ensuring years and became no less significant in the scientific world. Under the continued influence of Frank Spedding and Harley Wilhelm, the scientists of the Ames Lab directed their efforts in a variety of areas including the development of Iowa's first nuclear reactor, the Iowa State Teaching Reactor, which "went critical" on October 19, 1959.

Today, Ames' mission focus is on materials science, engineering, analytical instrumentation and chemical sciences that provides expertise to the Department of Energy (DOE) laboratory system in the areas of energy and environmental improvement. Ames' core capabilities are in Condensed Matter Physics and Materials Science, Chemical and Molecular Science and Applied Materials Science and Engineering; included in these is the computational support needed to carry out its mission. Ames operates the Materials Preparation Center (MPC), an Office of Science Specialized Research Center, which provides capabilities in preparation, purification, fabrication and characterization of materials in support of R&D programs throughout the world. Ames also collaborates with the DOE's applied energy technology, fossil energy and nonproliferation programs.

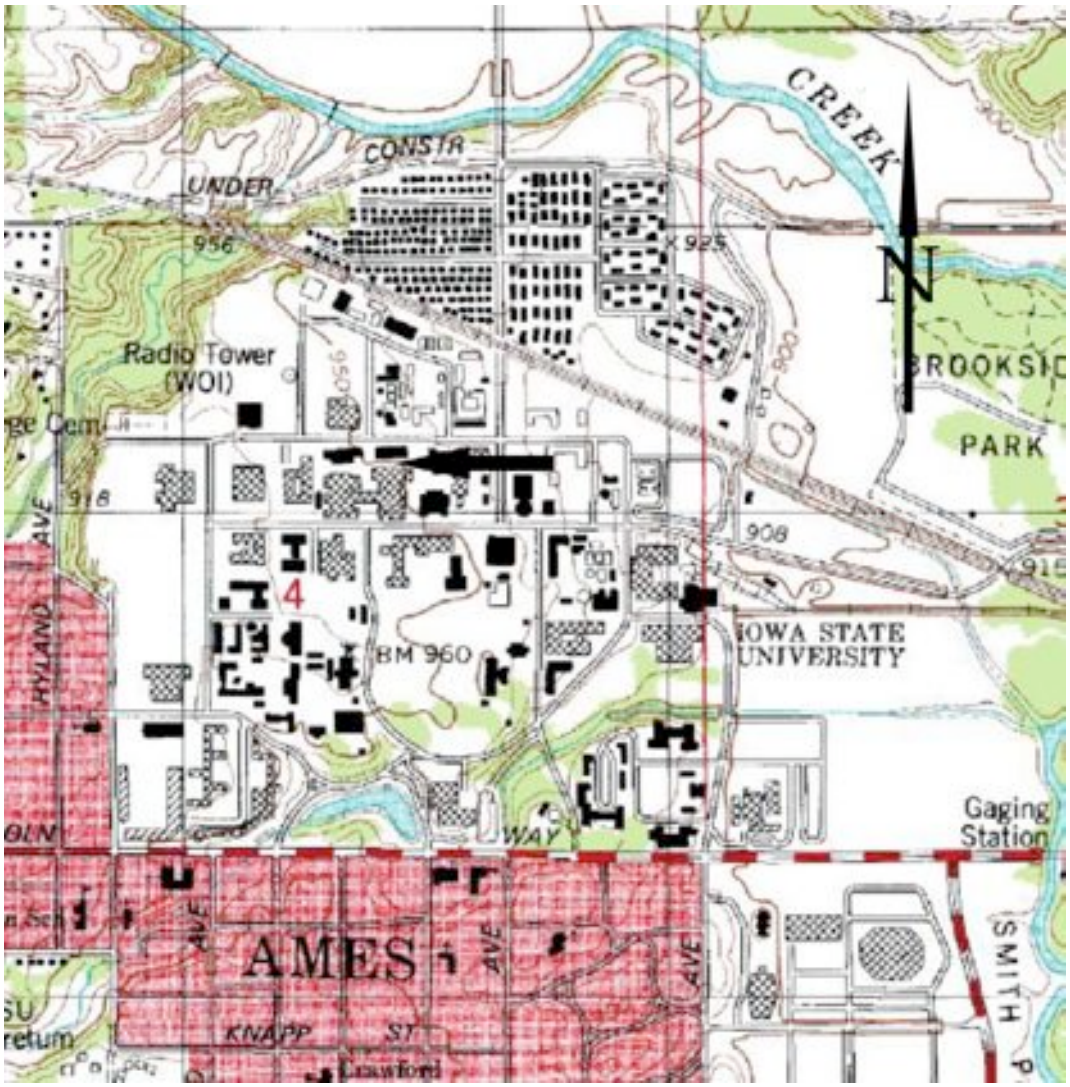
8. Statement of Significance

Due to a loss of historic integrity as it relates specifically to the building's original design and due to the tertiary nature of its functional connection to the operations of the Ames Laboratory, Records Storage is not considered eligible for listing on the National Register of Historic Places.

Garage	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Maps

USGS 7.5 MINUTE TOPOGRAPHIC MAP – AMES QUAD (1993)



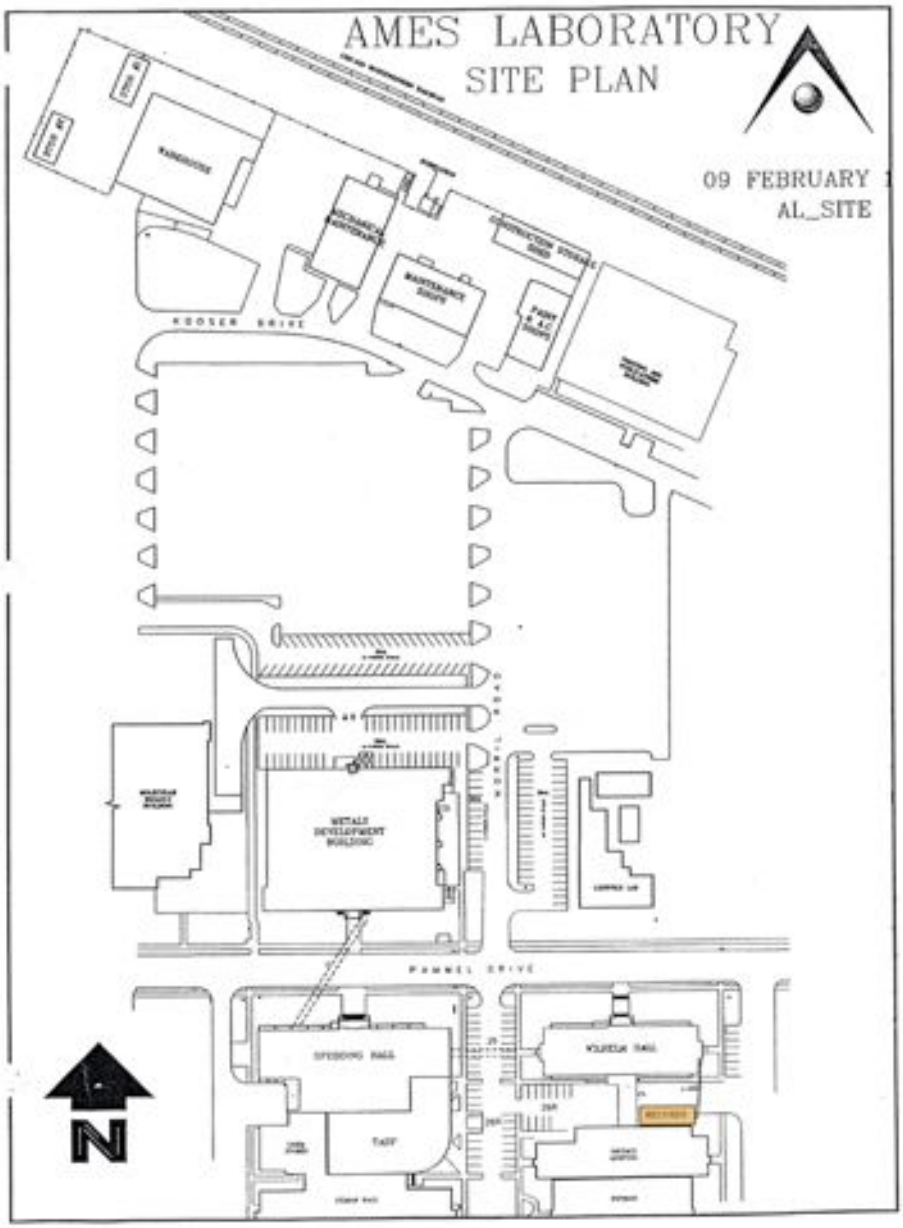
(MAP SOURCE: www.terraserver.com)

The arrow indicates the location of Records Storage.

Garage	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Maps

SITE MAP



(MAP SOURCE: Ames Lab – Facility Services – ca. 2007)

The orange shading indicates the location of Records Storage.

Garage	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of Records Storage looking out a third floor window on the south side of Wilhelm Hall.

(All images by AKAY Consulting – January 22, 2009 or February 25, 2009)

Garage	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of Records Storage, looking southeast from the Wilhelm dock. As the image indicates, the building is now attached to Zaffarano on the south (right). The loading dock, which services Zaffarano and Wilhelm Hall (out of view to left), abuts Records Storage on the west with a paved parking area on the building's east.

Garage	Story
Name of Property	County
Pammel Drive	Ames
Address	City

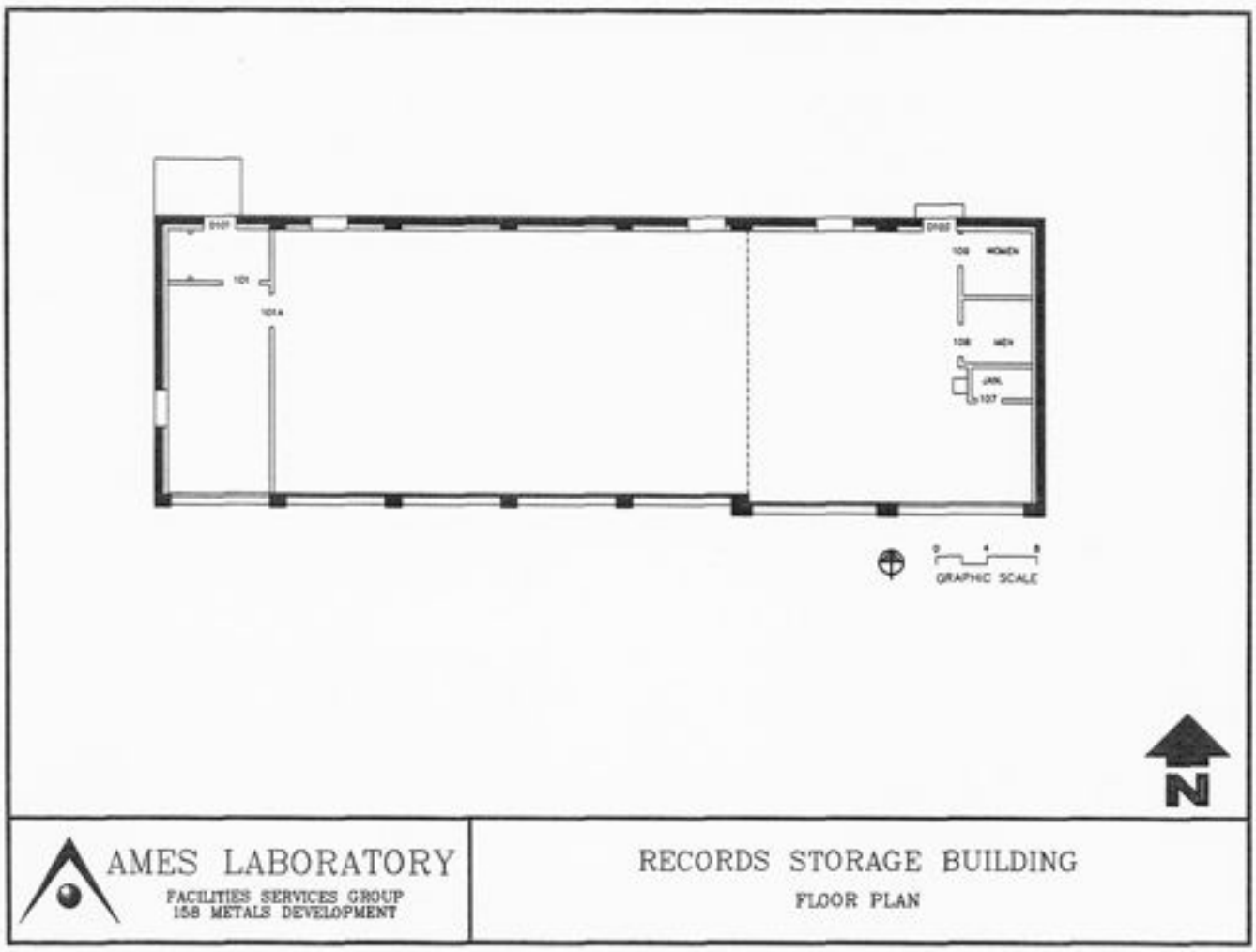
11. Additional Documentation – Photographs

View of Records Storage looking southwest. The building was originally constructed as a garage, with the taller section divided into two bays and the lower section divided into four bays; each of the bays had an overhead door for vehicular access.

Garage	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Plans

FLOOR PLAN - ca. 2007



(MAP SOURCE: Ames Lab – Facilities Services – ca. 2007)

Garage	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Historic Image

AERIAL – ca. 1955

(IMAGE SOURCE: Ames Lab – Office of Public Affairs)

This undated aerial documents Records Storage and the other Ames Laboratory buildings prior to the 1958-1960 construction period of the Metals Development building. In the image Records Storage (see arrow) can be seen with four low and two high overhead doors on its south elevation, indicating the building was still functioning as a garage at this time.

Garage	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Historic Image

AERIAL – ca. 1960

(IMAGE SOURCE: Ames Lab – Office of Public Affairs)

This aerial from ca. 1960 shows Records Storage (see arrow) in its historic context as a freestanding building. It appears that, by this date, the original overhead doors had been replaced by windows, indicating the change in function from garage to computer building. During that period the building was known as the “computer garage”.

Garage	Story
Name of Property	County
Pammel Drive	Ames
Address	City

9. Major Bibliographic References

Ames Lab Files – Department of Public Affairs
Site Maps – Construction Dates – *Ames Lab Insider* (various issues) – Historic Images

Ames Lab Files – Facility Services Office
Site Maps – Current Floor Plans – Historic Floor Plans

Day, H. Summerfield. *The Iowa State University Campus and Its Buildings, 1859-1979.* Ames: Iowa State University, 1980.

Internet Resources

Source for USGS Topographic maps	www.terraserver.com www.topozone.com
Legal Description	www.iowaassessors.com

Iowa State University Parks Library. Special Collections. Papers of Frank H. Spedding.

Oral Informants. Dan Kayser, Sr. Environmental Specialist, Ames Laboratory. (Various, January-February, 2009)
Mark Grootveld, Facility Services Group Manager, Ames Laboratory, (February 25, 2009)

Site Inventory Form

State Historical Society of Iowa
(November 2005)

State Inventory No. _____ ☒ New ☐ Supplemental
☐ Part of a district with known boundaries (enter inventory no.) _____
Relationship: ☐ Contributing ☐ Noncontributing
☐ Contributes to a potential district with yet unknown boundaries
National Register Status:(any that apply) ☐ Listed ☐ De-listed ☐ NHL ☐ DOE
9-Digit SHPO Review & Compliance (R&C) Number _____
☐ Non-Extant (enter year) _____

1. Name of Property

historic name Mechanical Maintenance

other names/site number

2. Location

street & number Kooser Drive
city or town Ames ☐ vicinity, county Story
Legal Description: (If Rural) Township Name Township No. Range No. Section Quarter of Quarter
Washington 83N 24W 04 __ __
(If Urban) Subdivision _____ Block(s) _____ Lot(s) _____

3. State/Federal Agency Certification [*Skip this Section*]

4. National Park Service Certification [*Skip this Section*]

5. Classification

Category of Property (Check only one box)
☒ building(s)
☐ district
☐ site
☐ structure
☐ object

Number of Resources within Property

If Non-Eligible Property Enter number of:		*If Eligible Property, enter number of:* Contributing	Noncontributing	
1	buildings	__	__	buildings
__	sites	__	__	sites
__	structures	__	__	structures
__	objects	__	__	objects
1	Total	__	__	Total

Name of related project report or multiple property study (Enter "N/A" if the property is not part of a multiple property examination).
Title *Historical Architectural Data Base Number*
N/A _____

6. Function or Use

Historic Functions (Enter categories from instructions)
99 OTHER; maintenance/garage
_____
_____

Current Functions (Enter categories from instructions)
99 OTHER; maintenance/garage
_____
_____

7. Description

Architectural Classification (Enter categories from instructions)
01 NO STYLE
_____
_____
_____

Materials (Enter categories from instructions)
foundation 10A CONCRETE; poured
walls (visible material) 03 BRICK
roof 05F METAL; steel
other _____

Narrative Description (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" representing your opinion of eligibility after applying relevant National Register criteria)

☐ Yes ☒ No ☐ More Research Recommended	A	Property is associated with significant events.
☐ Yes ☒ No ☐ More Research Recommended	B	Property is associated with the lives of significant persons.
☐ Yes ☒ No ☐ More Research Recommended	C	Property has distinctive architectural characteristics.
☐ Yes ☒ No ☐ More Research Recommended	D	Property yields significant information in archaeology or history.

County Story Address Kooser Drive Site Number
City Ames District Number

Criteria Considerations

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B Removed from its original location.
- ☐ C A birthplace or grave.
- ☐ D A cemetery
- ☐ E A reconstructed building, object, or structure.
- ☐ F A commemorative property.
- ☐ G Less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

_____

_____

Significant Dates

Construction date

1964 ☐ check if circa or estimated date

Other dates, including renovation

_____

Significant Person

(Complete if National Register Criterion B is marked above)

_____

_____

Architect/Builder

Architect

Brooks-Borg

Builder

Caldbeck, Inc.

Narrative Statement of Significance (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

9. Major Bibliographical References

Bibliography ☐ See continuation sheet for citations of the books, articles, and other sources used in preparing this form

10. Geographic Data

UTM References *(OPTIONAL)*

	Zone	*Easting*	*Northing*		*Zone*	*Easting*	*Northing*
1	15	446315	4653643	2			
3				4			

☐ See continuation sheet for additional UTM references or comments

11. Form Prepared By

name/title Alexa McDowell, Architectural Historian
organization AKAY Consulting date 02-15-09
street & number 1226 6th Street telephone 515-491-5432
city or town Boone state IA zip code 50036

ADDITIONAL DOCUMENTATION **(Submit the following items with the completed form)**

FOR ALL PROPERTIES

1. ***Map:*** showing the property's location in a town/city or township.
2. ***Site plan:*** showing position of buildings and structures on the site in relation to public road(s).
3. ***Photographs:*** representative black and white photos. If the photos are taken as part of a survey for which the Society is to be curator of the negatives or color slides, a photo/catalog sheet needs to be included with the negatives/slides and the following needs to be provided below on this particular inventory site:

   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____

   ☐ See continuation sheet or attached *photo & slide catalog sheet* for list of photo roll or slide entries.
   ☐ Photos/illustrations without negatives are also in this site inventory file.

FOR CERTAIN KINDS OF PROPERTIES, INCLUDE THE FOLLOWING AS WELL

1. ***Farmstead & District:*** (List of structures and buildings, known or estimated year built, and contributing or noncontributing status)
2. ***Barn:***
   a. A sketch of the frame/truss configuration in the form of drawing a typical middle bent of the barn.
   b. A photograph of the loft showing the frame configuration along one side.
   c. A sketch floor plan of the interior space arrangements along with the barn's exterior dimensions in feet.

State Historic Preservation Office (SHPO) Use Only Below This Line

Concur with above survey opinion on National Register eligibility: ☐ *Yes* ☐ *No* ☐ *More Research Recommended*
☐ *This is a locally designated property or part of a locally designated district.*

Comments: _____

Evaluated by (name/title): _____ *Date:* _____

Mechanical Maintenance	Story
Name of Property	County
Kooser Drive	Ames
Address	City

2. Location, cont'd.

Iowa State University Campus, Ames, Story County, Iowa. Mechanical Maintenance is located on the north side of Kooser Drive, adjacent to other storage and support buildings associated with the Ames Lab and/or the university.

5. Classification, cont'd.

Mechanical Maintenance is considered a building and counts as one resource.

7. Description

Site Description

Mechanical Maintenance is located in the northwest section of the Iowa State University campus, on a parcel of land bound by the Chicago & Northwestern railroad line (currently active) on the north and Kooser Drive on the south. The rail line cuts diagonally through the city of Ames and the building is sited perpendicular to the line with its main elevation (defined by the placement of the primary vehicular door) facing southwest. The building is bound by the Maintenance Shops on the east.

Property Description

Mechanical Maintenance is a functional support building and, as such, bears a utilitarian appearance. The rectangular property is constructed using a steel truss roof system with oversized, rough-faced brick walls set on a concrete pad. The modestly pitched, gable roof and the upper, exterior walls are finished in standing-seam steel panels. Although designed by a different architect, from the exterior Mechanical Maintenance and the Maintenance Shops building are nearly identical.

As the name implies, the building provides space for the maintenance of Ames Laboratory equipment. As required of that function the interior of the building is open in plan.

Integrity Considerations

Mechanical Maintenance is a well-maintained building, which retains its original form and construction materials. Because the building is not considered eligible for listing on the National Register of Historic Places, a thorough analysis of its integrity is not required at this time.

Property History

The history of the Ames Laboratory begins soon after the 1939 discovery of nuclear fission. With that discovery, the United States government became interested in focusing a national research effort on the development of nuclear energy. As part of that effort, Frank H. Spedding was called upon to organize and direct a research and development program that would work in tandem with the Manhattan Project's physics program. Spedding, who was a specialist in the chemistry of rare earth metals and thus well suited to the assignment, was head of the physical chemistry department as what was then Iowa State College.

Mechanical Maintenance	Story
Name of Property	County
Kooser Drive	Ames
Address	City

7. Description, cont'd.

Along with other university and industrial labs across the country, the group at Ames began experimenting with better ways of producing uranium. Harley Wilhelm, a metallurgist with the Ames group, headed the team that developed a process for producing large ingots of high-grade uranium at a substantially reduced cost. The Ames group produced one-third of the uranium used in the "first successful self-sustaining chain reaction initiating the controlled release of nuclear energy."

Having proved that a chain reaction could be self-sustained and controlled, the demand for pure uranium rose dramatically and the Ames group worked to help meet that demand. The work involved continual refinement of the enrichment process, including both the melting and casting of uranium; the process they developed remains in use today. In total, the Ames group produced more than 2 million pounds of uranium for the Manhattan Project, playing a significant role in the outcome of World War II.

The Atomic Energy Commission (AEC) officially established the Ames Laboratory on May 17, 1947. The Lab's purpose was "… to build up and maintain a strong group of scientists working in the fundamental sciences." At the October 1960 dedication of the Metals Development building, John A. McCone, Chairman of the U.S. Atomic Energy Commission was asked why the AEC chose Ames to fulfill the Ames Laboratory contract and he responded that "… laboratories of this type are the lengthening shadow of the individual who has the unique and unusual capacity to search into the mysteries of the problems and also to attract as a magnet, men of dedication and skill to work with him. Many years ago, long before I had anything to do with this, the Office of Scientific Research found in Professor Spedding that man. That is why this laboratory is in Ames."

But long before the construction of Metals Development came the Lab's first building, the Metallurgy Building (later Wilhelm Hall), which was occupied in 1949. The Research Laboratory (aka Research Building and, later, Spedding Hall) was constructed and occupied by 1950. This pair became the physical center of the Ames Laboratory, with additional office and laboratory space located in the Institute for Atomic Research (also built in 1947-48 and now known as the Office and Laboratory Building) and Gilman Hall. Various secondary structures, such as Mechanical Maintenance, the Maintenance Shop, Records Storage, and the Warehouse were added from the late 1940s through the 1990s. These buildings were constructed to provide support services and general storage space to the research and development efforts conducted in the facility's primary structures.

According to the Summerfield Day report, the Atomic Energy Commission funded the 1963-1964 construction of Mechanical Maintenance. The Des Moines firm of Brooks-Borg, which remains in existence, designed the building. The project contractor was Caldbeck, Inc. Mechanical Maintenance pre-dates the adjacent and nearly identical Maintenance Shops, which was designed by Tinsley, Higgins, Lighter & Lyon.

Mechanical Maintenance	Story
Name of Property	County
Kooser Drive	Ames
Address	City

7. Description, cont'd.

Although the Ames Laboratory's early history may be most intimately linked to the uranium program of the war years, the facility's research broadened over the ensuring years and became no less significant in the scientific world. Under the continued influence of Frank Spedding and Harley Wilhelm, the scientists of the Ames Lab directed their efforts in a variety of areas including the development of Iowa's first nuclear reactor, the Iowa State Teaching Reactor, which "went critical" on October 19, 1959.

Today, Ames' mission focus is on materials science, engineering, analytical instrumentation and chemical sciences that provides expertise to the Department of Energy (DOE) laboratory system in the areas of energy and environmental improvement. Ames' core capabilities are in Condensed Matter Physics and Materials Science, Chemical and Molecular Science and Applied Materials Science and Engineering; included in these is the computational support needed to carry out its mission. Ames operates the Materials Preparation Center (MPC), an Office of Science Specialized Research Center, which provides capabilities in preparation, purification, fabrication and characterization of materials in support of R&D programs throughout the world. Ames also collaborates with the DOE's applied energy technology, fossil energy and nonproliferation programs.

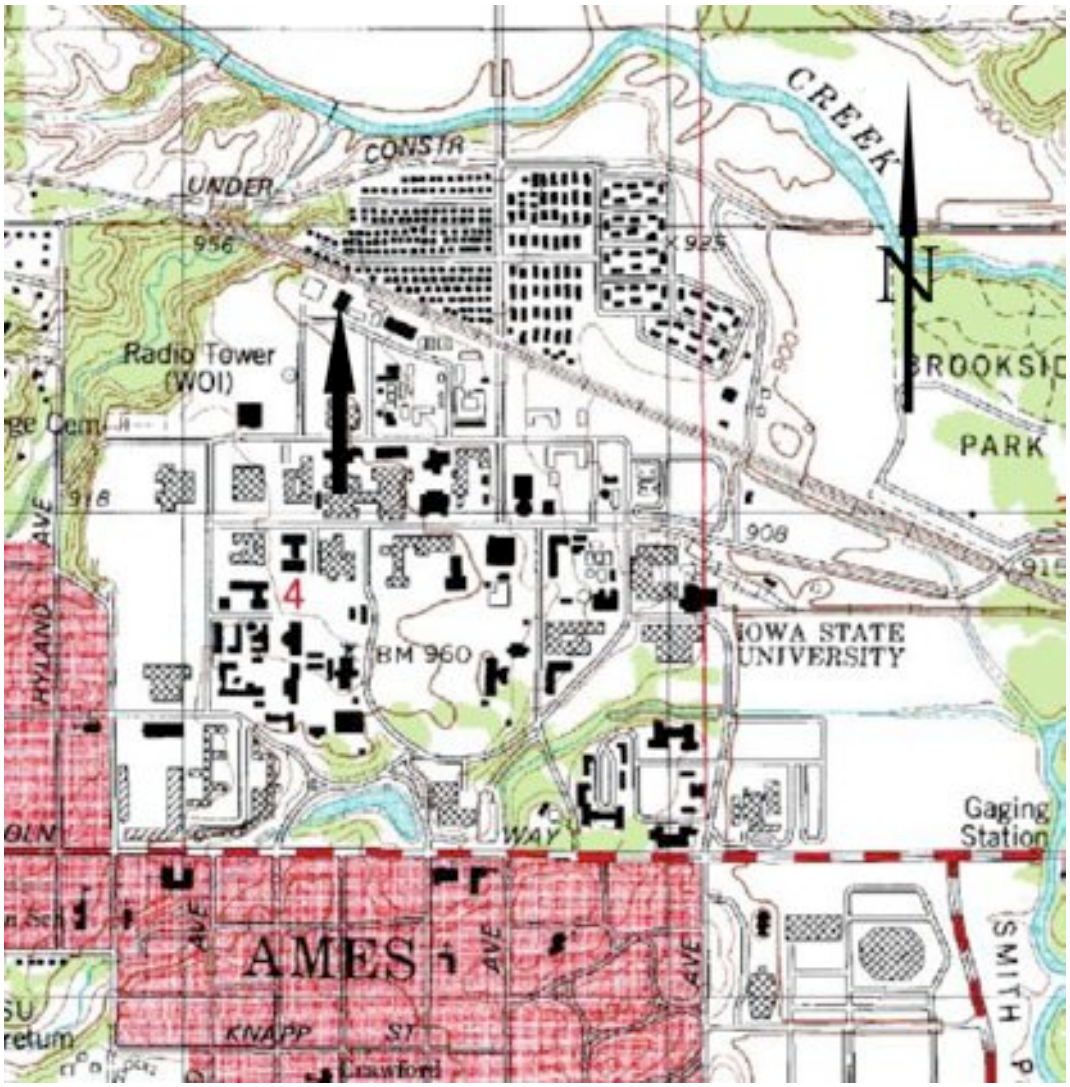
8. Statement of Significance

Because Mechanical Maintenance was constructed less than fifty years ago (the window established by the National Park Service), it is not considered eligible for listing on the National Register of Historic Places. However, the property provided direct support services for the programs of the Ames Lab, indicating the potential for historic significance should be revisited once the property reaches the designated threshold (2014). Further research at that time should seek to clarify the historic functions of Mechanical Maintenance and to delineate the clear and direct correlation to the work of the Lab.

Mechanical Maintenance	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

USGS 7.5 MINUTE TOPOGRAPHIC MAP – AMES QUAD (1993)



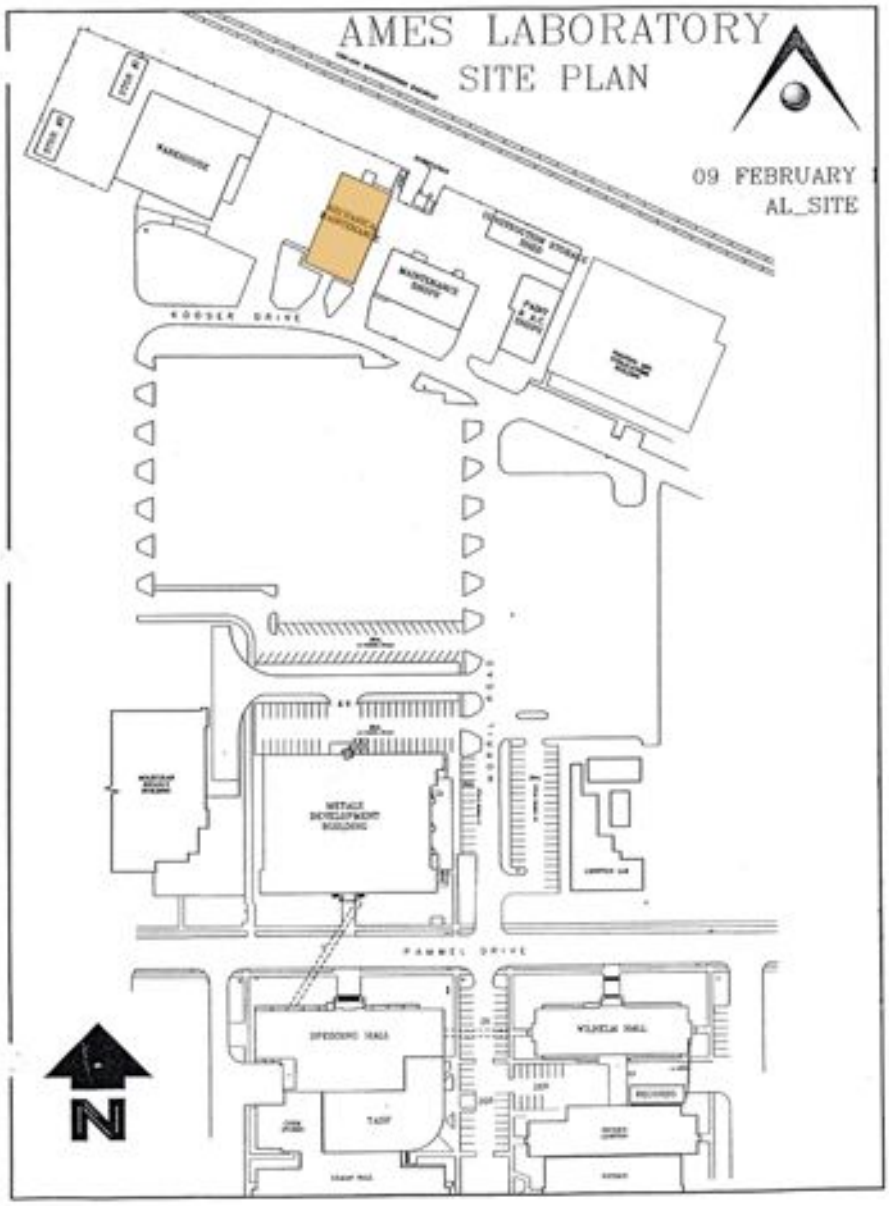
(MAP SOURCE: www.terraserver.com)

The arrow indicates the location of Mechanical Maintenance.

Mechanical Maintenance	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

SITE MAP



(MAP SOURCE: Ames Lab – Facility Services – ca. 2007)

The orange shading indicates the location of Mechanical Maintenance.

Mechanical Maintenance	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of Mechanical Maintenance, looking north from near Kooser Drive. Note the nearly identical Maintenance Shops at far right.

(All images by AKAY Consulting – January 22, 2009)

Mechanical Maintenance	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

Interior of the Mechanical Maintenance Building. Note the truss roof system and the concrete floor.

Mechanical Maintenance	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

Interior of Mechanical Maintenance.

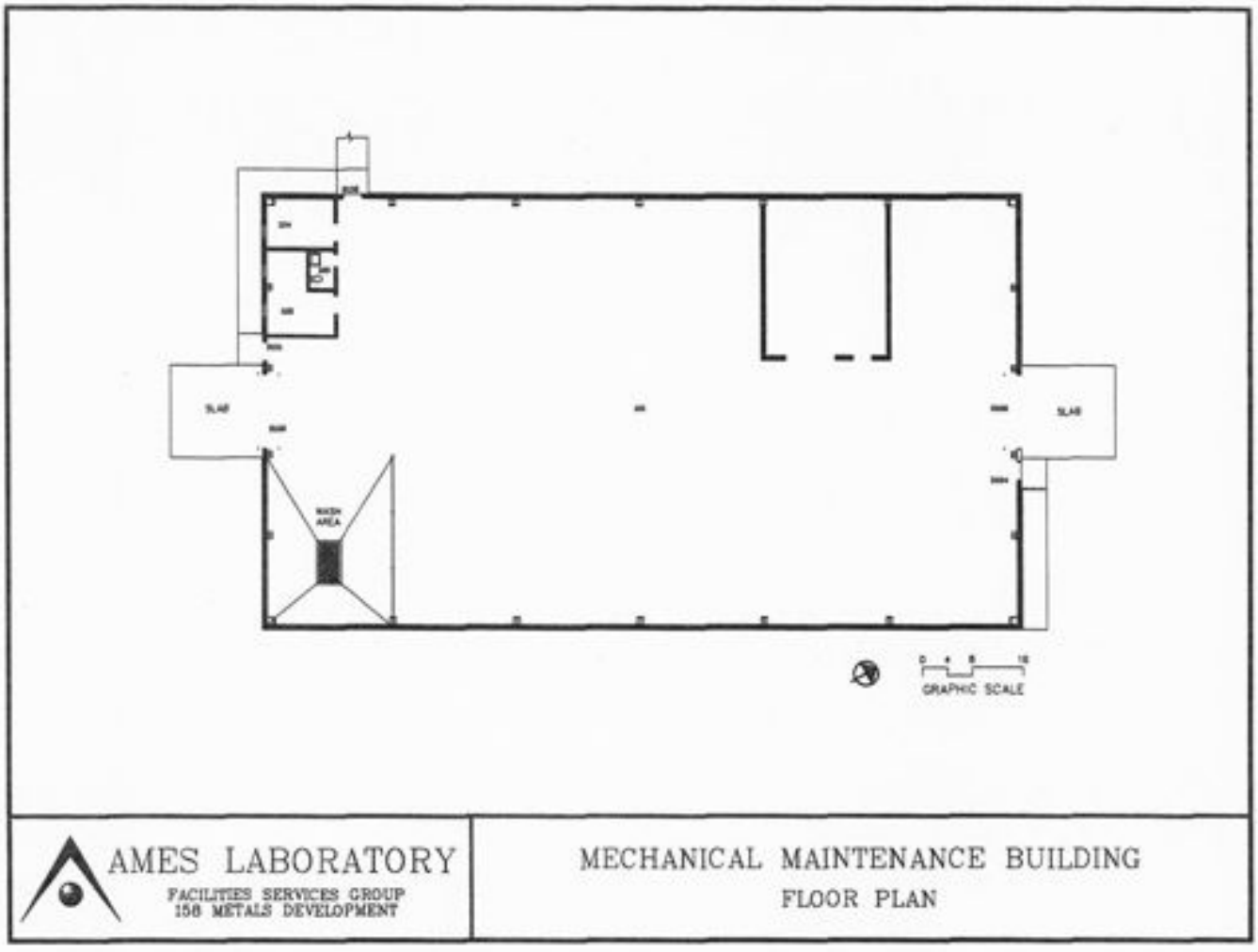
Mechanical Maintenance	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the building's interior.

Mechanical Maintenance	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Floor Plan



(SOURCE: Ames Laboratory – Facilities Services – ca 2007)

Mechanical Maintenance	Story
Name of Property	County
Kooser Drive	Ames
Address	City

9. Major Bibliographic References

Ames Lab Files – Department of Public Affairs
Site Maps – Construction Dates – *Ames Lab Insider* (various issues) – Historic Images

Ames Lab Files – Facility Services Office
Site Maps – Current Floor Plans – Historic Floor Plans

Day, H. Summerfield. *The Iowa State University Campus and Its Buildings, 1859-1979.* Ames: Iowa State University, 1980.

Internet Resources

Source for USGS Topographic maps	www.terraserver.com www.topozone.com
Legal Description	www.iowaassessors.com

Oral Informants. Dan Kayser, Sr. Environmental Specialist, Ames Laboratory. (Various, January-February, 2009)
Mark Grootveld, Facility Services Group Manager, Ames Laboratory, (February 25, 2009)

Shank, Wesley I. *Iowa's Historic Architect's: A Biographical Dictionary.* Iowa City: University of Iowa Press, 1999.

Mechanical Maintenance	Story
Name of Property	County
Kooser Drive	Ames
Address	City

Site Inventory Form

State Historical Society of Iowa
(November 2005)

State Inventory No. _____ ☒ New ☐ Supplemental
☐ Part of a district with known boundaries (enter inventory no.) _____
Relationship: ☐ Contributing ☐ Noncontributing
☐ Contributes to a potential district with yet unknown boundaries
National Register Status:(any that apply) ☐ Listed ☐ De-listed ☐ NHL ☐ DOE
9-Digit SHPO Review & Compliance (R&C) Number _____
☐ Non-Extant (enter year) _____

1. Name of Property

historic name Warehouse

other names/site number Warehouse & Shop

2. Location

street & number Kooser Drive
city or town Ames ☐ vicinity, county Story
Legal Description: (If Rural) Township Name Township No. Range No. Section Quarter of Quarter
Washington 83N 24W 04 __ __
(If Urban) Subdivision _____ Block(s) _____ Lot(s) _____

3. State/Federal Agency Certification [*Skip this Section*]

4. National Park Service Certification [*Skip this Section*]

5. Classification

Category of Property (Check only one box)
☒ building(s)
☐ district
☐ site
☐ structure
☐ object

Number of Resources within Property

If Non-Eligible Property Enter number of:		*If Eligible Property, enter number of:* Contributing	Noncontributing	
1	buildings	__	__	buildings
__	sites	__	__	sites
__	structures	__	__	structures
__	objects	__	__	objects
1	Total	__	__	Total

Name of related project report or multiple property study (Enter "N/A" if the property is not part of a multiple property examination).
Title *Historical Architectural Data Base Number*
N/A _____

6. Function or Use

Historic Functions (Enter categories from instructions)
99 OTHER; general storage/receiving
_____
_____

Current Functions (Enter categories from instructions)
99 OTHER; general storage/receiving
_____
_____

7. Description

Architectural Classification (Enter categories from instructions)
01 NO STYLE
_____
_____
_____

Materials (Enter categories from instructions)
foundation 10A CONCRETE; poured
walls (visible material) 03 BRICK
roof 05F METAL; steel
other _____

Narrative Description (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" representing your opinion of eligibility after applying relevant National Register criteria)

☐ Yes ☒ No ☐ More Research Recommended	A	Property is associated with significant events.
☐ Yes ☒ No ☐ More Research Recommended	B	Property is associated with the lives of significant persons.
☐ Yes ☒ No ☐ More Research Recommended	C	Property has distinctive architectural characteristics.
☐ Yes ☒ No ☐ More Research Recommended	D	Property yields significant information in archaeology or history.

County Story Address Kooser Drive Site Number
City Ames District Number

Criteria Considerations

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B Removed from its original location.
- ☐ C A birthplace or grave.
- ☐ D A cemetery
- ☐ E A reconstructed building, object, or structure.
- ☐ F A commemorative property.
- ☐ G Less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

_____

_____

Significant Dates

Construction date
1966 ☐ check if circa or estimated date
Other dates, including renovation
1970 Addition

Significant Person
(Complete if National Register Criterion B is marked above)

_____

_____

Architect/Builder

Architect
Tinsley, Higgins, Lighter & Lyon
Builder
King-Bole, Inc.

Narrative Statement of Significance (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

9. Major Bibliographical References

Bibliography ☐ See continuation sheet for citations of the books, articles, and other sources used in preparing this form

10. Geographic Data

UTM References *(OPTIONAL)*

	Zone	*Easting*	*Northing*		*Zone*	*Easting*	*Northing*
1	15	446259E	4653663	2			
3				4			

☐ See continuation sheet for additional UTM references or comments

11. Form Prepared By

name/title Alexa McDowell, Architectural Historian
organization AKAY Consulting date 02-15-09
street & number 1226 6th Street telephone 515-491-5432
city or town Boone state IA zip code 50036

ADDITIONAL DOCUMENTATION **(Submit the following items with the completed form)**

FOR ALL PROPERTIES

1. ***Map:*** showing the property's location in a town/city or township.
2. ***Site plan:*** showing position of buildings and structures on the site in relation to public road(s).
3. ***Photographs:*** representative black and white photos. If the photos are taken as part of a survey for which the Society is to be curator of the negatives or color slides, a photo/catalog sheet needs to be included with the negatives/slides and the following needs to be provided below on this particular inventory site:

   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____

   ☐ See continuation sheet or attached *photo & slide catalog sheet* for list of photo roll or slide entries.
   ☐ Photos/illustrations without negatives are also in this site inventory file.

FOR CERTAIN KINDS OF PROPERTIES, INCLUDE THE FOLLOWING AS WELL

1. ***Farmstead & District:*** (List of structures and buildings, known or estimated year built, and contributing or noncontributing status)
2. ***Barn:***
   a. A sketch of the frame/truss configuration in the form of drawing a typical middle bent of the barn.
   b. A photograph of the loft showing the frame configuration along one side.
   c. A sketch floor plan of the interior space arrangements along with the barn's exterior dimensions in feet.

State Historic Preservation Office (SHPO) Use Only Below This Line

Concur with above survey opinion on National Register eligibility: ☐ *Yes* ☐ *No* ☐ *More Research Recommended*
☐ *This is a locally designated property or part of a locally designated district.*

Comments: _____

Evaluated by (name/title): _____ *Date:* _____

Warehouse	Story
Name of Property	County
Kooser Drive	Ames
Address	City

2. Location, cont'd.

Iowa State University Campus, Ames, Story County, Iowa. The Warehouse is located on the north side of Kooser Drive, adjacent to other storage and support buildings associated with the Ames Lab and/or the university.

5. Classification, cont'd.

The Warehouse is considered a building and counts as one resource.

7. Description

Site Description

The Warehouse is located in the northwest section of the Iowa State University campus, on a parcel of land bound by the Chicago & Northwestern railroad line (currently active) on the north and Kooser Drive on the south. The rail line cuts diagonally through the city of Ames and Kooser Drive runs parallel to the line. The Warehouse, sited on Kooser, is also set at an angle (gable ends face northwest and southeast.) The building is located amid a collection of buildings sited along Kooser that provide various support services for the Ames Lab and the university. Ames Lab facilities, Storage 1, Storage 2, and Storage 3 are located west of the Warehouse, with Mechanical Maintenance sited to the east. The Warehouse shares a common concrete parking lot with the storage buildings.

Property Description

The Warehouse building is a functional support building and, as such, bears a utilitarian appearance. The rectangular property is constructed using a steel I-beam roof system with oversized rough-faced brick walls set on a concrete pad. The modestly pitched, gable roof is finished in standing-seam steel panels. Primary access to the building is gained on the south elevation, where a dock and multiple overhead doors provide vehicular access to the building. One pedestrian is also located on the south elevation. One overhead door is located at the north end of the west elevation. The building is devoid of windows.

As the name implies, the building provides space for Ames Laboratory large-scale warehousing needs. As dictated by the function, the building's interior is an open plan, with construction materials (steel beams, concrete floor, and rough-faced brick) exposed. A small space for an office has been created with a glazed tile wall in the southeast corner of the interior.

Integrity Considerations

The Warehouse is a well-maintained building, which retains its original site, general form, and construction materials. Because the building is not considered eligible for listing on the National Register of Historic Places, a thorough analysis of its integrity is not required at this time.

Warehouse	Story
Name of Property	County
Kooser Drive	Ames
Address	City

7. Description, cont'd.

Property History

The history of the Ames Laboratory begins soon after the 1939 discovery of nuclear fission. With that discovery, the United States government became interested in focusing a national research effort on the development of nuclear energy. As part of that effort, Frank H. Spedding was called upon to organize and direct a research and development program that would work in tandem with the Manhattan Project's physics program. Spedding, who was a specialist in the chemistry of rare earth metals and thus well suited to the assignment, was head of the physical chemistry department as what was then Iowa State College.

Along with other university and industrial labs across the country, the group at Ames began experimenting with better ways of producing uranium. Harley Wilhelm, a metallurgist with the Ames group, headed the team that developed a process for producing large ingots of high-grade uranium at a substantially reduced cost. The Ames group produced one-third of the uranium used in the "first successful self-sustaining chain reaction initiating the controlled release of nuclear energy."

Having proved that a chain reaction could be self-sustained and controlled, the demand for pure uranium rose dramatically and the Ames group worked to help meet that demand. The work involved continual refinement of the enrichment process, including both the melting and casting of uranium; the process they developed remains in use today. In total, the Ames group produced more than 2 million pounds of uranium for the Manhattan Project, playing a significant role in the outcome of World War II.

The Atomic Energy Commission (AEC) officially established the Ames Laboratory on May 17, 1947. The Lab's purpose was "… to build up and maintain a strong group of scientists working in the fundamental sciences." At the October 1960 dedication of the Metals Development building, John A. McCone, Chairman of the U.S. Atomic Energy Commission was asked why the AEC chose Ames to fulfill the Ames Laboratory contract and he responded that "… laboratories of this type are the lengthening shadow of the individual who has the unique and unusual capacity to search into the mysteries of the problems and also to attract as a magnet, men of dedication and skill to work with him. Many years ago, long before I had anything to do with this, the Office of Scientific Research found in Professor Spedding that man. That is why this laboratory is in Ames."

But long before the construction of Metals Development came the Lab's first building, the Metallurgy Building (later Wilhelm Hall), which was occupied in 1949. The Research Laboratory (aka Research Building and, later, Spedding Hall) was constructed and occupied by 1951. This pair became the physical center of the Ames Laboratory, with additional office and laboratory space located in the Institute for Atomic Research (also built in 1947-48 and now known as the Office and Laboratory Building) and Gilman Hall. Various secondary structures, such as Mechanical Maintenance, the

Warehouse	Story
Name of Property	County
Kooser Drive	Ames
Address	City

7. Description, cont'd.

Maintenance Shop, Records Storage, and the Warehouse were added from the late 1940s through the 1990s. These buildings were constructed to provide support services and general storage space to the research and development efforts conducted in the facility's primary structures.

According to the Ames Lab files, the Warehouse was built in 1966 for the purpose of providing general warehouse space for the Ames Laboratory. That construction date is supported by the Summerfield Day report, which further indicates that the Atomic Energy Commission funded construction of the Warehouse and that the building was designed by Tinsley, Higgins, Lighter & Lyon, with King-Bole, Inc. acting as the contractor. Day also indicates that an addition was made to the Warehouse in 1969-1970. That addition, which is apparently the expansion of the dock area on the southeast corner of the building, was designed by the Ames Lab Building & Engineering Services with James Thompson & Sons acting as the contractor.

Notably, Tinsley, Higgins, Lighter & Lyon was Des Moines firm responsible for the design of five other buildings of the Ames Laboratory, including Spedding Hall, Wilhelm Hall, and Metals Development.

Although the Ames Laboratory's early history may be most intimately linked to the uranium program of the war years, the facility's research broadened over the ensuring years and became no less significant in the scientific world. Under the continued influence of Frank Spedding and Harley Wilhelm, the scientists of the Ames Lab directed their efforts in a variety of areas including the development of Iowa's first nuclear reactor, the Iowa State Teaching Reactor, which "went critical" on October 19, 1959.

Today, Ames' mission focus is on materials science, engineering, analytical instrumentation and chemical sciences that provides expertise to the Department of Energy (DOE) laboratory system in the areas of energy and environmental improvement. Ames' core capabilities are in Condensed Matter Physics and Materials Science, Chemical and Molecular Science and Applied Materials Science and Engineering; included in these is the computational support needed to carry out its mission. Ames operates the Materials Preparation Center (MPC), an Office of Science Specialized Research Center, which provides capabilities in preparation, purification, fabrication and characterization of materials in support of R&D programs throughout the world. Ames also collaborates with the DOE's applied energy technology, fossil energy and nonproliferation programs.

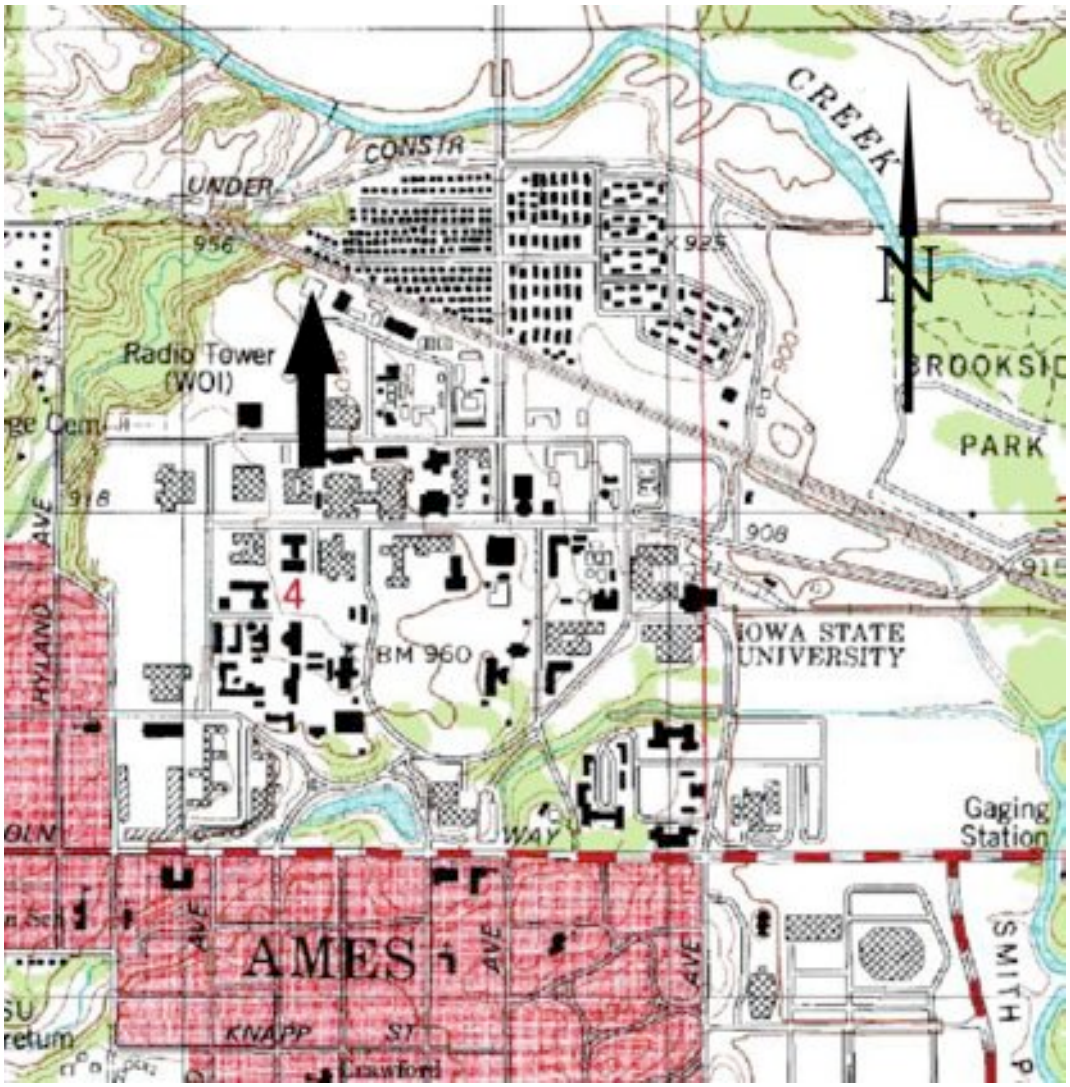
8. Statement of Significance

Because the Warehouse was constructed less than fifty years ago (the window established by the National Park Service), it is not considered eligible for listing on the National Register of Historic Places. Because the property provided direct support services for the programs of the Ames Lab, the potential for significance should be revisited once the property reaches that designated threshold (2016). Further research at that time should seek to clarify the historic functions of the Maintenance Shops Building and to delineate the clear and direct correlation to the work of the Lab.

Warehouse	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

USGS 7.5 MINUTE TOPOGRAPHIC MAP – AMES QUAD (1993)



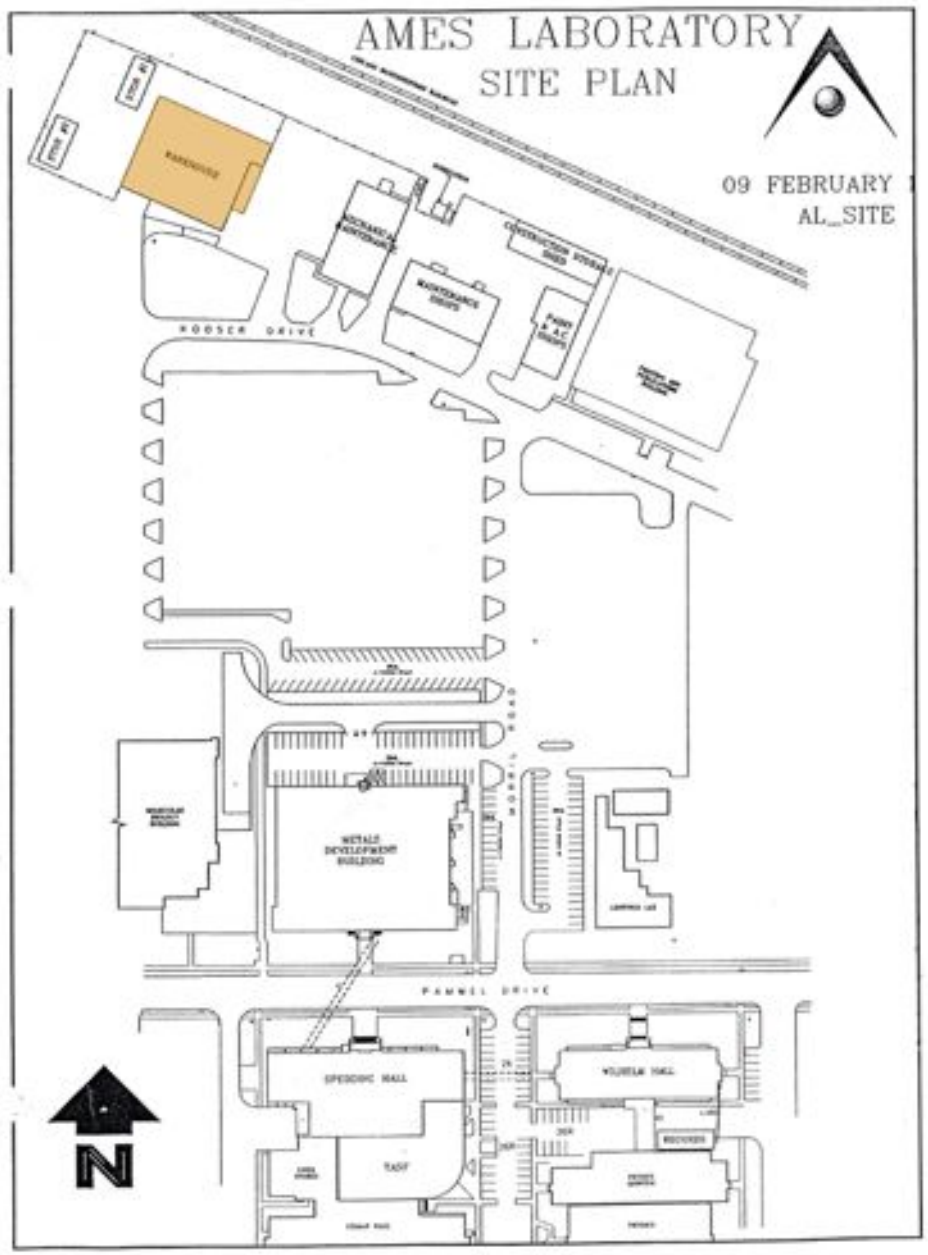
(MAP SOURCE: www.terraserver.com)

The location of the Warehouse is indicated by the arrow.

Warehouse	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

SITE MAP



(MAP SOURCE: Ames Laboratory – Facilities Services – ca. 2007)

The location of the Warehouse is indicated by orange shading.

Warehouse	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the Warehouse, looking northeast across Kooser Drive

(All images by AKAY Consulting – January 22, 2009)

Warehouse	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation - Photographs

View of the Warehouse's loading dock on the building's south elevation.

Warehouse	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation - Photographs

View of the Warehouse interior, looking to the south. Note the office (enclosed in buff-colored, glazed block) at right in the background.

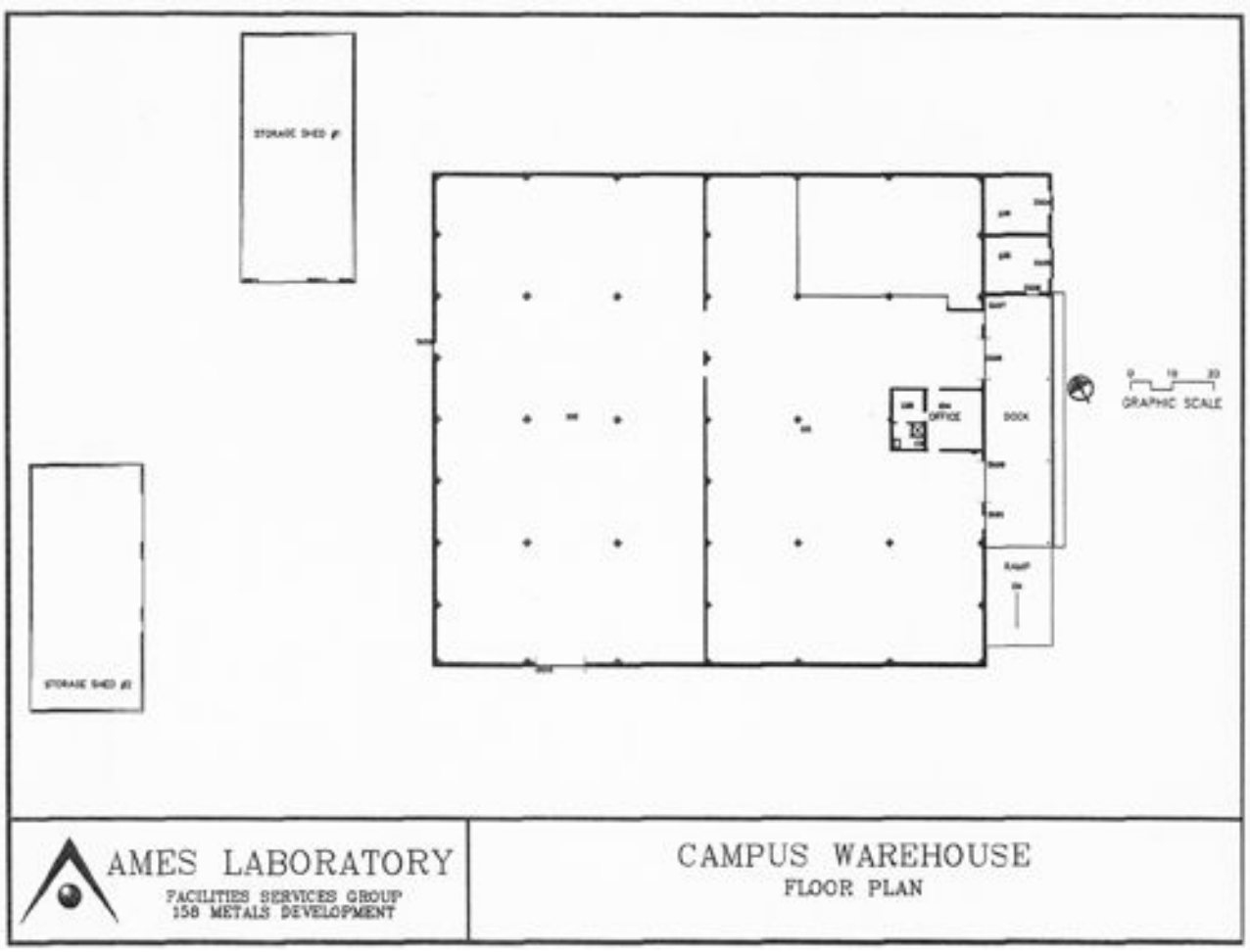
Warehouse	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the Warehouse interior, looking to the north.

Warehouse	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Floor Plan



(SOURCE: Ames Laboratory – Facilities Services – ca 2007)

Warehouse	Story
Name of Property	County
Kooser Drive	Ames
Address	City

9. Major Bibliographic References

Ames Lab Files – Department of Public Affairs
Site Maps – Construction Dates – *Ames Lab Insider* (various issues) – Historic Images

Ames Lab Files – Facility Services Office
Site Maps – Current Floor Plans – Historic Floor Plans

Day, H. Summerfield. *The Iowa State University Campus and Its Buildings, 1859-1979.* Ames: Iowa State University, 1980.

Internet Resources

Source for USGS Topographic maps	www.terraserver.com www.topozone.com
Legal Description	www.iowaassessors.com

Oral Informants. Dan Kayser, Sr. Environmental Specialist, Ames Laboratory. (Various, January-February, 2009)
Mark Grootveld, Facility Services Group Manager, Ames Laboratory, (February 25, 2009)

Shank, Wesley I. *Iowa's Historic Architect's: A Biographical Dictionary.* Iowa City: University of Iowa Press, 1999.

Site Inventory Form

State Historical Society of Iowa
(November 2005)

State Inventory No. _____ ☒ New ☐ Supplemental
☐ Part of a district with known boundaries (enter inventory no.) _____
Relationship: ☐ Contributing ☐ Noncontributing
☐ Contributes to a potential district with yet unknown boundaries
National Register Status:(any that apply) ☐ Listed ☐ De-listed ☐ NHL ☐ DOE
9-Digit SHPO Review & Compliance (R&C) Number _____
☐ Non-Extant (enter year) _____

1. Name of Property

historic name Construction Storage

other names/site number _____

2. Location

street & number Kooser Drive
city or town Ames ☐ vicinity, county Story
Legal Description: (If Rural) Township Name Washington; Township No. 83N; Range No. 24W; Section 04; Quarter __ of Quarter __
(If Urban) Subdivision _____ Block(s) _____ Lot(s) _____

3. State/Federal Agency Certification [*Skip this Section*]

4. National Park Service Certification [*Skip this Section*]

5. Classification

Category of Property (Check only one box)
☒ building(s)
☐ district
☐ site
☐ structure
☐ object

Number of Resources within Property

If Non-Eligible Property Enter number of:		*If Eligible Property, enter number of:* Contributing	Noncontributing	
1	buildings	__	__	buildings
__	sites	__	__	sites
__	structures	__	__	structures
__	objects	__	__	objects
1	Total	__	__	Total

Name of related project report or multiple property study (Enter "N/A" if the property is not part of a multiple property examination).
Title N/A
Historical Architectural Data Base Number _____

6. Function or Use

Historic Functions (Enter categories from instructions)
99 OTHER; general storage
_____
_____

Current Functions (Enter categories from instructions)
99 OTHER; general storage
_____
_____

7. Description

Architectural Classification (Enter categories from instructions)
01 NO STYLE
_____
_____
_____

Materials (Enter categories from instructions)
foundation _____
walls (visible material) 05F METAL; steel
roof 05F METAL; steel
other _____

Narrative Description (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" representing your opinion of eligibility after applying relevant National Register criteria)

☐ Yes ☒ No ☐ More Research Recommended	A	Property is associated with significant events.
☐ Yes ☒ No ☐ More Research Recommended	B	Property is associated with the lives of significant persons.
☐ Yes ☒ No ☐ More Research Recommended	C	Property has distinctive architectural characteristics.
☐ Yes ☒ No ☐ More Research Recommended	D	Property yields significant information in archaeology or history.

County Story Address Kooser Drive Site Number
City Ames District Number

Criteria Considerations

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B Removed from its original location.
- ☐ C A birthplace or grave.
- ☐ D A cemetery
- ☐ E A reconstructed building, object, or structure.
- ☐ F A commemorative property.
- ☐ G Less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

_____

_____

Significant Dates

Construction date

1967 ☐ check if circa or estimated date

Other dates, including renovation

_____

Significant Person

(Complete if National Register Criterion B is marked above)

_____

_____

Architect/Builder

Architect

_____

Builder

Ames Lab Building & Engineering Services

Narrative Statement of Significance (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

9. Major Bibliographical References

Bibliography ☐ See continuation sheet for citations of the books, articles, and other sources used in preparing this form

10. Geographic Data

UTM References *(OPTIONAL)*

	Zone	*Easting*	*Northing*		*Zone*	*Easting*	*Northing*
1	15	446391	4653633	2	__	_____	_____
3	__	_____	_____	4	__	_____	_____

☐ See continuation sheet for additional UTM references or comments

11. Form Prepared By

name/title Alexa McDowell, Architectural Historian
organization AKAY Consulting date 02-15-09
street & number 1226 6th Street telephone 515-491-5432
city or town Boone state IA zip code 50036

ADDITIONAL DOCUMENTATION **(Submit the following items with the completed form)**

FOR ALL PROPERTIES

1. ***Map:*** showing the property's location in a town/city or township.
2. ***Site plan:*** showing position of buildings and structures on the site in relation to public road(s).
3. ***Photographs:*** representative black and white photos. If the photos are taken as part of a survey for which the Society is to be curator of the negatives or color slides, a photo/catalog sheet needs to be included with the negatives/slides and the following needs to be provided below on this particular inventory site:

   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____

   ☐ See continuation sheet or attached *photo & slide catalog sheet* for list of photo roll or slide entries.
   ☐ Photos/illustrations without negatives are also in this site inventory file.

FOR CERTAIN KINDS OF PROPERTIES, INCLUDE THE FOLLOWING AS WELL

1. ***Farmstead & District:*** (List of structures and buildings, known or estimated year built, and contributing or noncontributing status)
2. ***Barn:***
   a. A sketch of the frame/truss configuration in the form of drawing a typical middle bent of the barn.
   b. A photograph of the loft showing the frame configuration along one side.
   c. A sketch floor plan of the interior space arrangements along with the barn's exterior dimensions in feet.

State Historic Preservation Office (SHPO) Use Only Below This Line

Concur with above survey opinion on National Register eligibility: ☐ *Yes* ☐ *No* ☐ *More Research Recommended*
☐ *This is a locally designated property or part of a locally designated district.*

Comments: _____

Evaluated by (name/title): _____ *Date:* _____

Construction Storage	Story
Name of Property	County
Kooser Drive	Ames
Address	City

2. Location, cont'd.

Iowa State University Campus, Ames, Story County, Iowa. Construction Storage is located on the north side of Kooser Drive, adjacent to other storage and support buildings associated with the Ames Lab and/or the university.

5. Classification, cont'd.

Construction Storage is considered a building and counts as one resource.

7. Description

Site Description

Construction Storage is located in the northwest section of the Iowa State University campus, on a parcel of land bound by the Chicago & Northwestern railroad line (currently active) on the north and Kooser Drive on the south. The rail line cuts diagonally through the city of Ames and the building, which is sited parallel to the line, is sited on the diagonal with its primary elevation facing southwest. Construction Storage is located at the back of a collection of buildings sited along Kooser that provide various support services for the Ames Laboratory and the university. Ames Laboratory facilities, the Paint & AC Building and the Maintenance Shops, are located immediately south and southeast of Construction Storage; a common concrete parking lot provides vehicular access to all three buildings.

Property Description

Construction Storage is a functional support building and, as such, bears a utilitarian appearance. The rectangular property is constructed of a steel I-Beam structural system on a concrete pad. The nearly flat, gable roof and walls are standing-seam steel panels. A series of five vehicular doors are located on the parking lot side (south elevation) with one pedestrian entrance on the west elevation. The building is devoid of windows. Louvered vents are located in the gable ends.

As the name implies, the building provides space for the storage of miscellaneous construction materials.

Integrity Considerations

Construction Storage is a well-maintained building, which retains its original form and construction materials. Because the building is not considered eligible for listing on the National Register of Historic Places, a thorough analysis of its integrity is not required at this time.

Construction Storage	Story
Name of Property	County
Kooser Drive	Ames
Address	City

7. Description, cont'd.

Property History

The history of the Ames Laboratory begins soon after the 1939 discovery of nuclear fission. With that discovery, the United States government became interested in focusing a national research effort on the development of nuclear energy. As part of that effort, Frank H. Spedding was called upon to organize and direct a research and development program that would work in tandem with the Manhattan Project's physics program. Spedding, who was a specialist in the chemistry of rare earth metals and thus well suited to the assignment, was head of the physical chemistry department as what was then Iowa State College.

Along with other university and industrial labs across the country, the group at Ames began experimenting with better ways of producing uranium. Harley Wilhelm, a metallurgist with the Ames group, headed the team that developed a process for producing large ingots of high-grade uranium at a substantially reduced cost. The Ames group produced one-third of the uranium used in the "first successful self-sustaining chain reaction initiating the controlled release of nuclear energy."

Having proved that a chain reaction could be self-sustained and controlled, the demand for pure uranium rose dramatically and the Ames group worked to help meet that demand. The work involved continual refinement of the enrichment process, including both the melting and casting of uranium; the process they developed remains in use today. In total, the Ames group produced more than 2 million pounds of uranium for the Manhattan Project, playing a significant role in the outcome of World War II.

The Atomic Energy Commission (AEC) officially established the Ames Laboratory on May 17, 1947. The Lab's purpose was "… to build up and maintain a strong group of scientists working in the fundamental sciences." At the October 1960 dedication of the Metals Development building, John A. McCone, Chairman of the U.S. Atomic Energy Commission was asked why the AEC chose Ames to fulfill the Ames Laboratory contract and he responded that "… laboratories of this type are the lengthening shadow of the individual who has the unique and unusual capacity to search into the mysteries of the problems and also to attract as a magnet, men of dedication and skill to work with him. Many years ago, long before I had anything to do with this, the Office of Scientific Research found in Professor Spedding that man. That is why this laboratory is in Ames."

But long before the construction of Metals Development came the Lab's first building, the Metallurgy Building (later Wilhelm Hall), which was occupied in 1949. The Research Laboratory (aka Research Building and, later, Spedding Hall) was constructed and occupied by 1951. This pair became the physical center of the Ames Laboratory, with additional office and laboratory space located in the Institute for Atomic Research (also built in 1947-48 and now known as the Office and Laboratory Building) and Gilman Hall. Various secondary structures, such as Mechanical Maintenance, the

Construction Storage	Story
Name of Property	County
Kooser Drive	Ames
Address	City

7. Description, cont'd.

Maintenance Shop, Records Storage, and the Warehouse were added from the late 1940s through the 1990s. These buildings were constructed to provide support services and general storage space to the research and development efforts conducted in the facility's primary structures.

According to the Ames Laboratory files, Construction Storage was built in 1967 for the purpose of providing space for the storage of miscellaneous construction materials. H. Summerfield Day (University Architect, 1966-1975 and Planning Coordinator, 1975-1980) confirms that the building was constructed for the Ames Laboratory with funds provided by the Atomic Energy Commission in 1967. The Ames Laboratory Building & Engineering Services designed the property. No major alterations have been made to the original building.

Although the Ames Laboratory's early history may be most intimately linked to the uranium program of the war years, the facility's research broadened over the ensuring years and became no less significant in the scientific world. Under the continued influence of Frank Spedding and Harley Wilhelm, the scientists of the Ames Lab directed their efforts in a variety of areas including the development of Iowa's first nuclear reactor, the Iowa State Teaching Reactor, which "went critical" on October 19, 1959.

Today, Ames' mission focus is on materials science, engineering, analytical instrumentation and chemical sciences that provides expertise to the Department of Energy (DOE) laboratory system in the areas of energy and environmental improvement. Ames' core capabilities are in Condensed Matter Physics and Materials Science, Chemical and Molecular Science and Applied Materials Science and Engineering; included in these is the computational support needed to carry out its mission. Ames operates the Materials Preparation Center (MPC), an Office of Science Specialized Research Center, which provides capabilities in preparation, purification, fabrication and characterization of materials in support of R&D programs throughout the world. Ames also collaborates with the DOE's applied energy technology, fossil energy and nonproliferation programs.

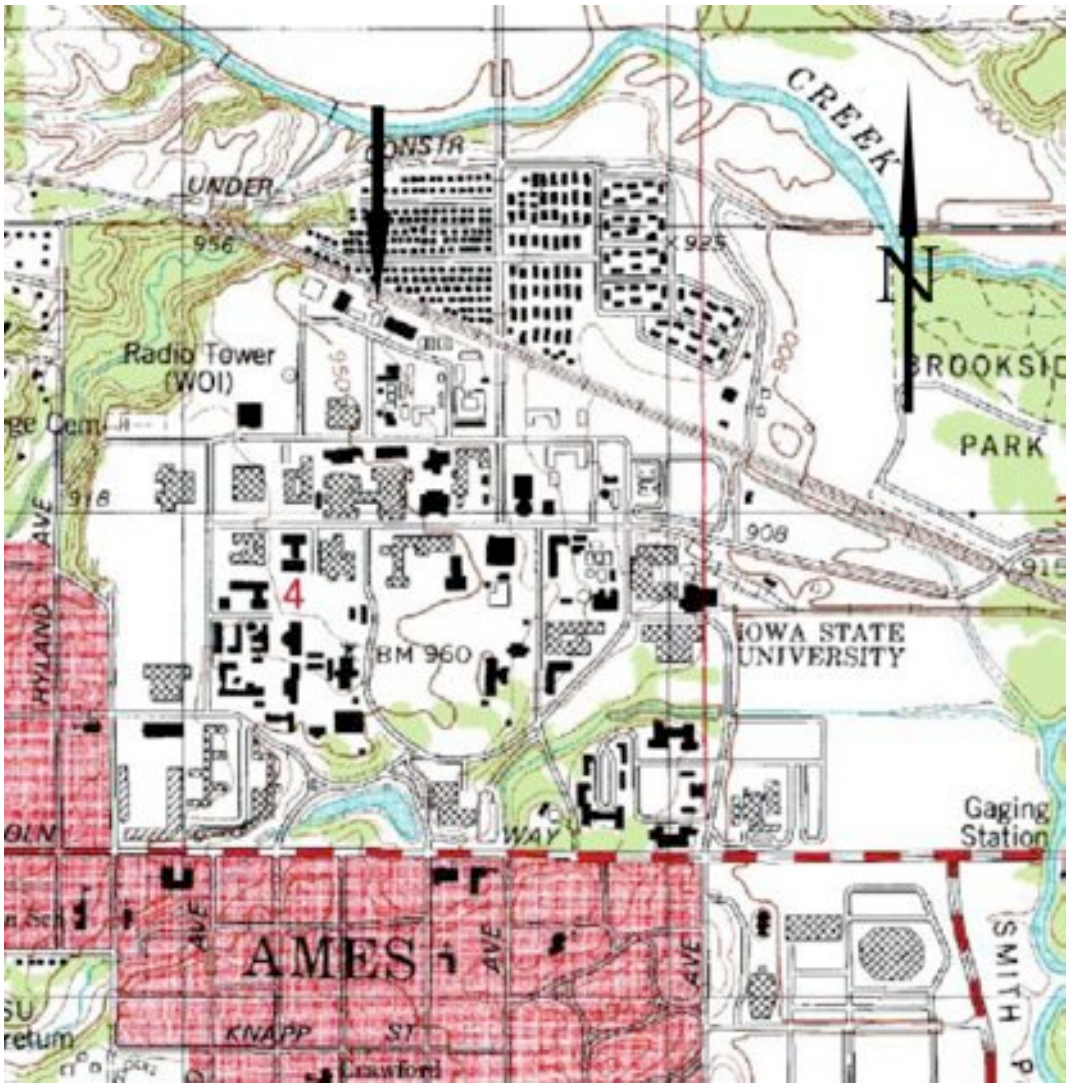
8. Statement of Significance

Because Construction Storage was constructed less that fifty years ago (the window established by the National Park Service), it is not considered eligible for listing on the National Register of Historic Places. The potential for significance could be revisited once the property reaches that designated threshold, but, given its tertiary relevance to the work of the Ames Lab and the building's unremarkable construction materials and methods, it is unlikely that the property will ever rise to the level of significance necessary to be considered for listing on the National Register of Historic Places.

Construction Storage	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

USGS 7.5 MINUTE TOPOGRAPHIC MAP – AMES QUAD (1993)



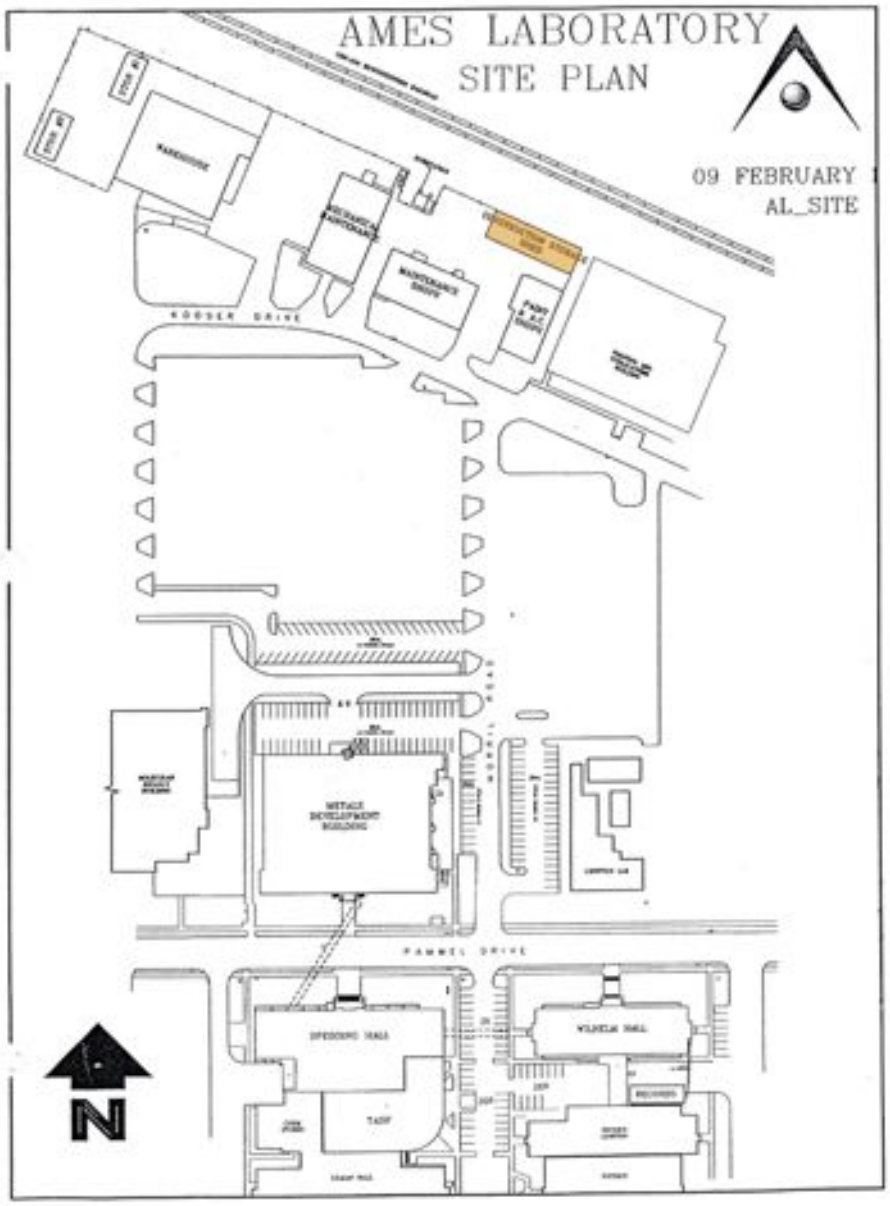
(MAP SOURCE: www.terraserver-usa.com)

The arrow indicates the location of Construction Storage.

Construction Storage	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

SITE MAP



(MAP SOURCE: Ames Laboratory Files – Facility Services – ca. 2007)

The orange shading indicates the location of Construction Storage.

Construction Storage	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation, cont'd.

PHOTOGRAPHS

View of Construction Storage, looking northeast from the rear of the Maintenance Shop.

(All images by AKAY Consulting – January 22, 2009)

Construction Storage	Story
Name of Property	County
Kooser Drive	Ames
Address	City

9. Major Bibliographic References

Ames Lab Files – Department of Public Affairs
Site Maps – Construction Dates – *Ames Lab Insider* (various issues) – Historic Images

Ames Lab Files – Facility Services Office
Site Maps – Current Floor Plans – Historic Floor Plans

Day, H. Summerfield. *The Iowa State University Campus and Its Buildings, 1859-1979.* Ames: Iowa State University, 1980.

Internet Resources

Source for USGS Topographic maps	www.terraserver.com www.trails.com
Legal Description	www.iowaassessors.com

Oral Informants. Dan Kayser, Sr. Environmental Specialist, Ames Laboratory. (Various, January-February, 2009)
Mark Grootveld, Facility Services Group Manager, Ames Laboratory, (February 25, 2009)

Site Inventory Form

State Historical Society of Iowa
(November 2005)

State Inventory No. _____ ☒ New ☐ Supplemental
☐ Part of a district with known boundaries (enter inventory no.) _____
Relationship: ☐ Contributing ☐ Noncontributing
☐ Contributes to a potential district with yet unknown boundaries
National Register Status:(any that apply) ☐ Listed ☐ De-listed ☐ NHL ☐ DOE
9-Digit SHPO Review & Compliance (R&C) Number _____
☐ Non-Extant (enter year) _____

1. Name of Property

historic name Maintenance Shops

other names/site number

2. Location

street & number Kooser Drive
city or town Ames ☐ vicinity, county Story
Legal Description: (If Rural) Township Name Township No. Range No. Section Quarter of Quarter
Washington 83N 24W 04 __ __
(If Urban) Subdivision _____ Block(s) _____ Lot(s) _____

3. State/Federal Agency Certification [*Skip this Section*]

4. National Park Service Certification [*Skip this Section*]

5. Classification

Category of Property (Check only one box)
☒ building(s)
☐ district
☐ site
☐ structure
☐ object

Number of Resources within Property

If Non-Eligible Property Enter number of:		*If Eligible Property, enter number of:* Contributing	Noncontributing
1	buildings	__	__ buildings
__	sites	__	__ sites
__	structures	__	__ structures
__	objects	__	__ objects
1	Total	__	__ Total

Name of related project report or multiple property study (Enter "N/A" if the property is not part of a multiple property examination).
Title *Historical Architectural Data Base Number*
N/A _____

6. Function or Use

Historic Functions (Enter categories from instructions)
99 OTHER; fabrication of facility-related needs
_____
_____

Current Functions (Enter categories from instructions)
99 OTHER; fabrication of facility-related needs
_____
_____

7. Description

Architectural Classification (Enter categories from instructions)
01 NO STYLE
_____
_____
_____

Materials (Enter categories from instructions)
foundation 10A CONCRETE; poured
walls (visible material) 03 BRICK
roof 05F METAL; steel
other _____

Narrative Description (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" representing your opinion of eligibility after applying relevant National Register criteria)

☐ Yes ☒ No ☐ More Research Recommended	A	Property is associated with significant events.
☐ Yes ☒ No ☐ More Research Recommended	B	Property is associated with the lives of significant persons.
☐ Yes ☒ No ☐ More Research Recommended	C	Property has distinctive architectural characteristics.
☐ Yes ☒ No ☐ More Research Recommended	D	Property yields significant information in archaeology or history.

County Story Address Kooser Drive Site Number
City Ames District Number

Criteria Considerations

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B Removed from its original location.
- ☐ C A birthplace or grave.
- ☐ D A cemetery
- ☐ E A reconstructed building, object, or structure.
- ☐ F A commemorative property.
- ☐ G Less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

_____

_____

Significant Dates

Construction date

1967 ☐ check if circa or estimated date

Other dates, including renovation

_____

Significant Person

(Complete if National Register Criterion B is marked above)

_____

_____

Architect/Builder

Architect

Tinsley, Higgins, Lighter & Lyon

Builder

King-Bole, Inc.

Narrative Statement of Significance (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

9. Major Bibliographical References

Bibliography ☐ See continuation sheet for citations of the books, articles, and other sources used in preparing this form

10. Geographic Data

UTM References *(OPTIONAL)*

	Zone	*Easting*	*Northing*		*Zone*	*Easting*	*Northing*
1	15	446345	4653612	2			
3				4			

☐ See continuation sheet for additional UTM references or comments

11. Form Prepared By

name/title Alexa McDowell, Architectural Historian
organization AKAY Consulting date 02-15-09
street & number 1226 6th Street telephone 515-491-5432
city or town Boone state IA zip code 50036

ADDITIONAL DOCUMENTATION **(Submit the following items with the completed form)**

FOR ALL PROPERTIES

1. ***Map:*** showing the property's location in a town/city or township.
2. ***Site plan:*** showing position of buildings and structures on the site in relation to public road(s).
3. ***Photographs:*** representative black and white photos. If the photos are taken as part of a survey for which the Society is to be curator of the negatives or color slides, a photo/catalog sheet needs to be included with the negatives/slides and the following needs to be provided below on this particular inventory site:

   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____

   ☐ See continuation sheet or attached *photo & slide catalog sheet* for list of photo roll or slide entries.
   ☐ Photos/illustrations without negatives are also in this site inventory file.

FOR CERTAIN KINDS OF PROPERTIES, INCLUDE THE FOLLOWING AS WELL

1. ***Farmstead & District:*** (List of structures and buildings, known or estimated year built, and contributing or noncontributing status)
2. ***Barn:***
   a. A sketch of the frame/truss configuration in the form of drawing a typical middle bent of the barn.
   b. A photograph of the loft showing the frame configuration along one side.
   c. A sketch floor plan of the interior space arrangements along with the barn's exterior dimensions in feet.

State Historic Preservation Office (SHPO) Use Only Below This Line

Concur with above survey opinion on National Register eligibility: ☐ *Yes* ☐ *No* ☐ *More Research Recommended*
☐ *This is a locally designated property or part of a locally designated district.*

Comments: _____

Evaluated by (name/title): _____ *Date:* _____

Maintenance Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

2. Location, cont'd.

Iowa State University Campus, Ames, Story County, Iowa. The Maintenance Shops building is located on the north side of Kooser Drive, adjacent to other storage and support buildings associated with the Ames Lab and/or the university.

5. Classification, cont'd.

Maintenance Shops is considered a building and counts as one resource.

7. Description

Site Description

The Maintenance Shops building is located in the northwest section of the Iowa State University campus, on a parcel of land bound by the Chicago & Northwestern railroad line (currently active) on the north and Kooser Drive on the south. The rail line cuts diagonally through the city of Ames and Kooser Drive runs parallel to the line with the Maintenance Shops, sited on Kooser, also at an angle (gable ends face northwest and southeast.) The building is located amid a collection of buildings sited along Kooser that provide various support services for the Ames Lab and the university. Ames Lab facilities, the Paint & AC Building and Construction Storage, are located immediately northeast of the Maintenance Shops with a common concrete parking lot providing vehicular access to all three buildings.

Property Description

The Maintenance Shops building is a functional support building and, as such, bears a utilitarian appearance. The rectangular property is constructed using a steel I-beam roof system with oversized rough-faced brick walls set on a concrete pad. The modestly pitched, gable roof and the upper, exterior walls are finished in standing-seam steel panels. Primary access to the building is gained on the north elevation, where two over-sized doors and one pedestrian entrance are located (see floor plan.) A pedestrian door is located on the south elevation. The building has a minimum of windows – two are found on the east end of the south elevation.

As the name implies, the building provides space for Ames Laboratory facility maintenance needs, specifically related to electrical, plumbing and sheet metal (e.g. vent hoods for laboratory spaces) issues. Although the Shops building's interior is generally an open plan, there is some sub-division of space by function.

Integrity Considerations

Maintenance Shops is a well-maintained building, which retains its original form and construction materials. Because the building is not considered eligible for listing on the National Register of Historic Places, a thorough analysis of its integrity is not required at this time.

Maintenance Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

7. Description, cont'd.

Property History

The history of the Ames Laboratory begins soon after the 1939 discovery of nuclear fission. With that discovery, the United States government became interested in focusing a national research effort on the development of nuclear energy. As part of that effort, Frank H. Spedding was called upon to organize and direct a research and development program that would work in tandem with the Manhattan Project's physics program. Spedding, who was a specialist in the chemistry of rare earth metals and thus well suited to the assignment, was head of the physical chemistry department as what was then Iowa State College.

Along with other university and industrial labs across the country, the group at Ames began experimenting with better ways of producing uranium. Harley Wilhelm, a metallurgist with the Ames group, headed the team that developed a process for producing large ingots of high-grade uranium at a substantially reduced cost. The Ames group produced one-third of the uranium used in the "first successful self-sustaining chain reaction initiating the controlled release of nuclear energy."

Having proved that a chain reaction could be self-sustained and controlled, the demand for pure uranium rose dramatically and the Ames group worked to help meet that demand. The work involved continual refinement of the enrichment process, including both the melting and casting of uranium; the process they developed remains in use today. In total, the Ames group produced more than 2 million pounds of uranium for the Manhattan Project, playing a significant role in the outcome of World War II.

The Atomic Energy Commission (AEC) officially established the Ames Laboratory on May 17, 1947. The Lab's purpose was "… to build up and maintain a strong group of scientists working in the fundamental sciences." At the October 1960 dedication of the Metals Development building, John A. McCone, Chairman of the U.S. Atomic Energy Commission was asked why the AEC chose Ames to fulfill the Ames Laboratory contract and he responded that "… laboratories of this type are the lengthening shadow of the individual who has the unique and unusual capacity to search into the mysteries of the problems and also to attract as a magnet, men of dedication and skill to work with him. Many years ago, long before I had anything to do with this, the Office of Scientific Research found in Professor Spedding that man. That is why this laboratory is in Ames."

But long before the construction of Metals Development came the Lab's first building, the Metallurgy Building (later Wilhelm Hall), which was occupied in 1949. The Research Laboratory (aka Research Building and, later, Spedding Hall) was constructed and occupied by 1950. This pair became the physical center of the Ames Laboratory, with additional office and laboratory space located in the Institute for Atomic Research (also built in 1947-48 and now known as the Office and Laboratory Building) and Gilman Hall. Various secondary structures, such as Mechanical Maintenance, the

Maintenance Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

7. Description, cont'd.

Maintenance Shop, Records Storage, and the Warehouse were added from the late 1940s through the 1990s. These buildings were constructed to provide support services and general storage space to the research and development efforts conducted in the facility's primary structures.

According to the Ames Lab files, the Maintenance Shop was built in 1967 (as was Construction Storage) for the purpose of providing support space for the Ames Laboratory. The building historically housed the machine and wood shops as well as the support services related to the plumbing and electrical needs of the Lab. No major alterations (either exterior or interior) appear to have been made to the original building. The 1967 construction date is supported by the Summerfield Day report, which further indicates that the Atomic Energy Commission funded construction of the Maintenance Shops and that the building was designed by Tinsley, Higgins, Lighter & Lyon. The Des Moines firm is also responsible for the design of five other buildings of the Ames Laboratory, including Spedding Hall, Wilhelm Hall, and Metals Development.

Although the Ames Laboratory's early history may be most intimately linked to the uranium program of the war years, the facility's research broadened over the ensuring years and became no less significant in the scientific world. Under the continued influence of Frank Spedding and Harley Wilhelm, the scientists of the Ames Lab directed their efforts in a variety of areas including the development of Iowa's first nuclear reactor, the Iowa State Teaching Reactor, which "went critical" on October 19, 1959.

Today, Ames' mission focus is on materials science, engineering, analytical instrumentation and chemical sciences that provides expertise to the Department of Energy (DOE) laboratory system in the areas of energy and environmental improvement. Ames' core capabilities are in Condensed Matter Physics and Materials Science, Chemical and Molecular Science and Applied Materials Science and Engineering; included in these is the computational support needed to carry out its mission. Ames operates the Materials Preparation Center (MPC), an Office of Science Specialized Research Center, which provides capabilities in preparation, purification, fabrication and characterization of materials in support of R&D programs throughout the world. Ames also collaborates with the DOE's applied energy technology, fossil energy and nonproliferation programs.

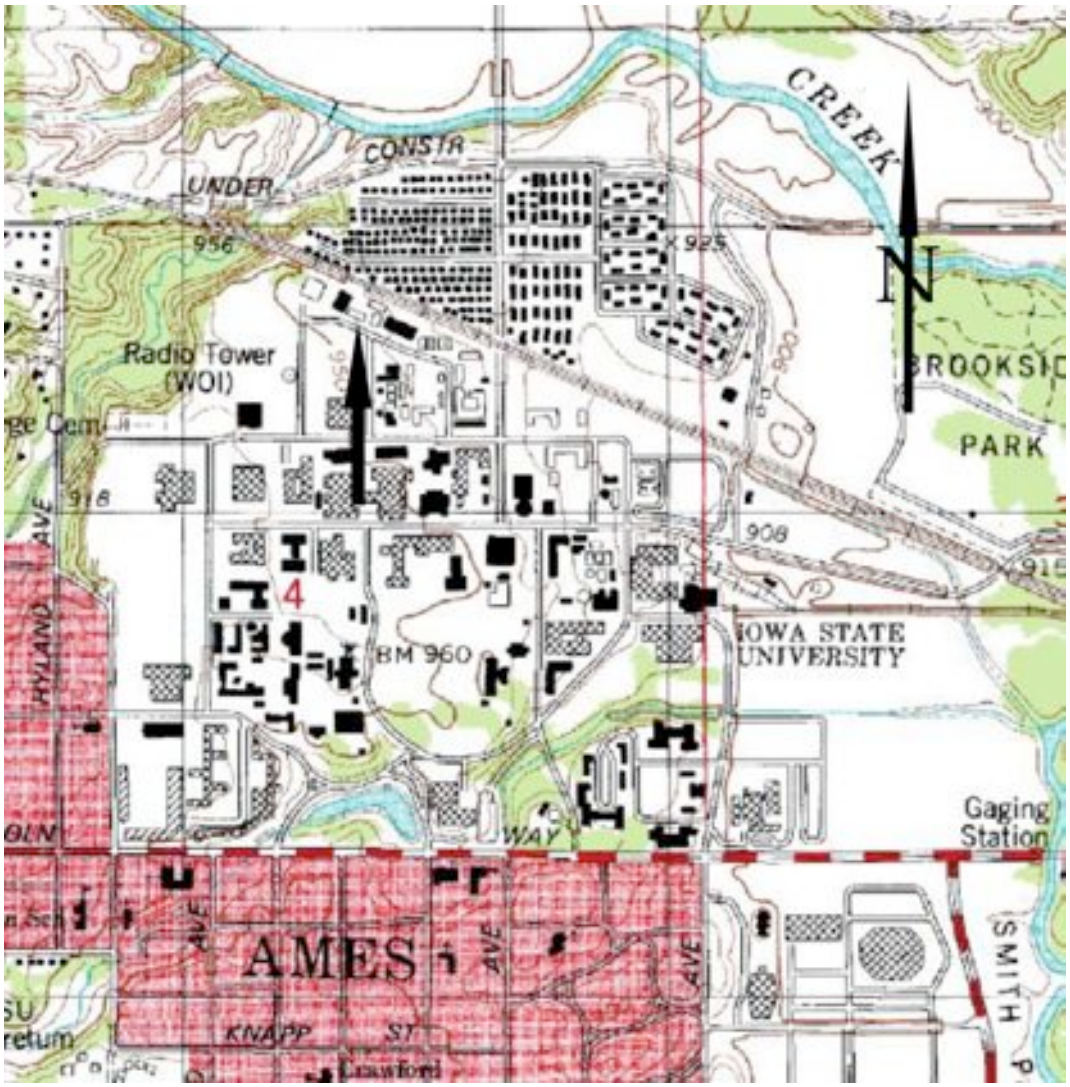
8. Statement of Significance

Because the Maintenance Shops building was constructed less than fifty years ago (the window established by the National Park Service), it is not considered eligible for listing on the National Register of Historic Places. Because the property provided direct support services for the programs of the Ames Lab, the potential for significance should be revisited once the property reaches that designated threshold (2017). Further research at that time should seek to clarify the historic functions of the Maintenance Shops Building and to delineate the clear and direct correlation to the work of the Lab.

Maintenance Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

USGS 7.5 MINUTE TOPOGRAPHIC MAP – AMES QUAD (1993)



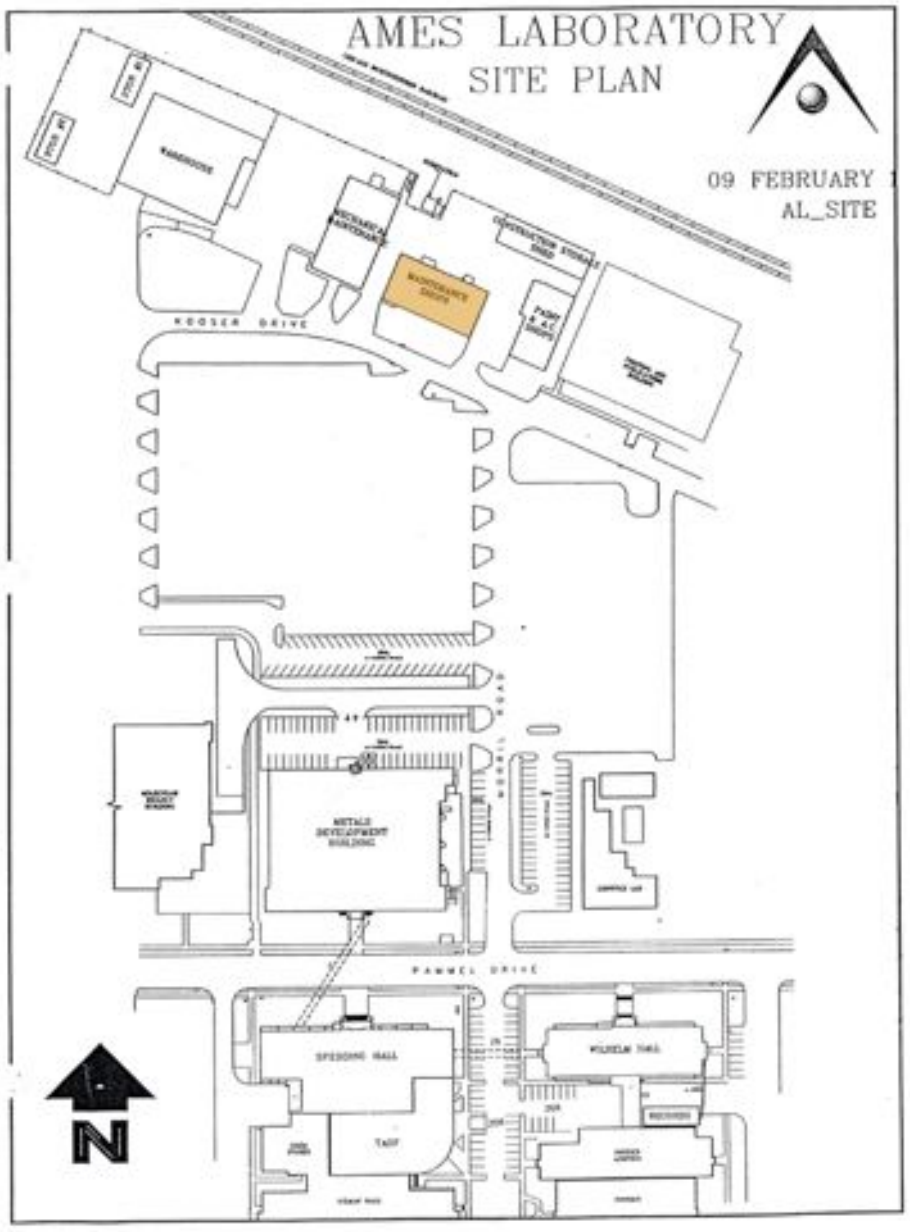
(MAP SOURCE: www.terraserver-usa.com)

The arrow indicates the location of the Maintenance Shops.

Maintenance Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

SITE MAP



(MAP SOURCE: Ames Laboratory Files – Facility Services – ca. 2007)

The orange shading indicates the location of the Maintenance Shops.

Maintenance Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the west and south elevations of the Maintenance Shops, looking northeast across Kooser Drive.

(All images by AKAY Consulting – January 22, 2009)

Maintenance Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the east end of the building's interior, looking to the east. Note the polished concrete floor, exposed ductwork in the ceiling, and the steel panels of the upper walls.

Maintenance Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the building's interior, looking to the northeast.

Maintenance Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the building's interior, looking to the west – the full wall marks the separation between the two major interior spaces, while the glazed tile wall at left is the locker area. The door at right opens to the north parking area.

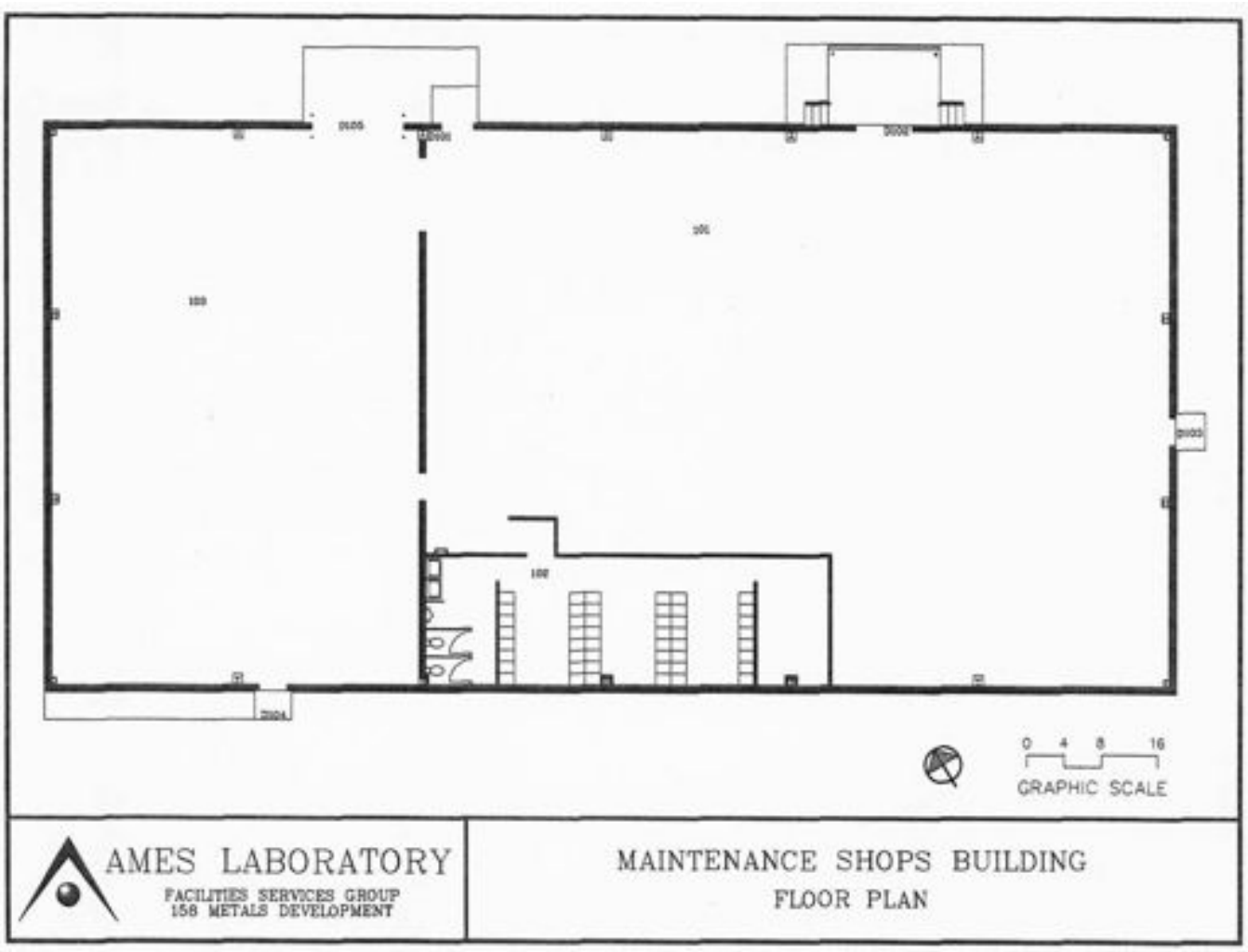
Maintenance Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the west end of the building's interior space.

Maintenance Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Floor Plan



(SOURCE: Ames Laboratory – Facilities Services – ca 2007)

Maintenance Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

9. Major Bibliographic References

Ames Lab Files – Department of Public Affairs
Site Maps – Construction Dates – *Ames Lab Insider* (various issues) – Historic Images

Ames Lab Files – Facility Services Office
Site Maps – Current Floor Plans – Historic Floor Plans

Day, H. Summerfield. *The Iowa State University Campus and Its Buildings, 1859-1979.* Ames: Iowa State University, 1980.

Internet Resources

Source for USGS Topographic maps	www.terraserver.com www.topozone.com
Legal Description	www.iowaassessors.com

Oral Informants. Dan Kayser, Sr. Environmental Specialist, Ames Laboratory. (Various, January-February, 2009)
Mark Grootveld, Facility Services Group Manager, Ames Laboratory, (February 25, 2009)

Shank, Wesley I. *Iowa's Historic Architect's: A Biographical Dictionary.* Iowa City: University of Iowa Press, 1999.

Site Inventory Form

State Historical Society of Iowa
(November 2005)

State Inventory No. _____ ☒ New ☐ Supplemental
☐ Part of a district with known boundaries (enter inventory no.) _____
Relationship: ☐ Contributing ☐ Noncontributing
☐ Contributes to a potential district with yet unknown boundaries
National Register Status:(any that apply) ☐ Listed ☐ De-listed ☐ NHL ☐ DOE
9-Digit SHPO Review & Compliance (R&C) Number _____
☐ Non-Extant (enter year) _____

1. Name of Property

historic name Paint & AC Shops

other names/site number

2. Location

street & number Kooser Drive
city or town Ames ☐ vicinity, county Story
Legal Description: (If Rural) Township Name Township No. Range No. Section Quarter of Quarter
Washington 83N 24W 04 __ __
(If Urban) Subdivision _____ Block(s) _____ Lot(s) _____

3. State/Federal Agency Certification [*Skip this Section*]

4. National Park Service Certification [*Skip this Section*]

5. Classification

Category of Property (Check only one box)
☒ building(s)
☐ district
☐ site
☐ structure
☐ object

Number of Resources within Property

If Non-Eligible Property Enter number of:		*If Eligible Property, enter number of:* Contributing	Noncontributing	
1	buildings	__	__	buildings
__	sites	__	__	sites
__	structures	__	__	structures
__	objects	__	__	objects
1	Total	__	__	Total

Name of related project report or multiple property study (Enter "N/A" if the property is not part of a multiple property examination).
Title *Historical Architectural Data Base Number*
N/A _____

6. Function or Use

Historic Functions (Enter categories from instructions)
99 OTHER; fabrication of facility-related needs
_____
_____

Current Functions (Enter categories from instructions)
99 OTHER; fabrication of facility-related needs
_____
_____

7. Description

Architectural Classification (Enter categories from instructions)
01 NO STYLE
_____
_____
_____

Materials (Enter categories from instructions)
foundation 10B CONCRETE; poured
walls (visible material) 03 BRICK
roof 10B CONCRETE; poured
other _____

Narrative Description (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" representing your opinion of eligibility after applying relevant National Register criteria)

☐ Yes ☒ No ☐ More Research Recommended	A	Property is associated with significant events.
☐ Yes ☒ No ☐ More Research Recommended	B	Property is associated with the lives of significant persons.
☐ Yes ☒ No ☐ More Research Recommended	C	Property has distinctive architectural characteristics.
☐ Yes ☒ No ☐ More Research Recommended	D	Property yields significant information in archaeology or history.

County Story Address Kooser Drive Site Number
City Ames District Number

Criteria Considerations

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B Removed from its original location.
- ☐ C A birthplace or grave.
- ☐ D A cemetery
- ☐ E A reconstructed building, object, or structure.
- ☐ F A commemorative property.
- ☐ G Less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

_____

_____

Significant Dates

Construction date

1968 ☐ check if circa or estimated date

Other dates, including renovation

_____

Significant Person

(Complete if National Register Criterion B is marked above)

_____

_____

Architect/Builder

Architect

Brown, Healey & Bock

Builder

Carlson-Rockey, Inc.

Narrative Statement of Significance (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

9. Major Bibliographical References

Bibliography ☐ See continuation sheet for citations of the books, articles, and other sources used in preparing this form

10. Geographic Data

UTM References *(OPTIONAL)*

	Zone	*Easting*	*Northing*		*Zone*	*Easting*	*Northing*
1	15	446386	4653607	2			
3				4			

☐ See continuation sheet for additional UTM references or comments

11. Form Prepared By

name/title Alexa McDowell, Architectural Historian
organization AKAY Consulting date 02-15-09
street & number 1226 6th Street telephone 515-491-5432
city or town Boone state IA zip code 50036

ADDITIONAL DOCUMENTATION **(Submit the following items with the completed form)**

FOR ALL PROPERTIES

1. ***Map:*** showing the property's location in a town/city or township.
2. ***Site plan:*** showing position of buildings and structures on the site in relation to public road(s).
3. ***Photographs:*** representative black and white photos. If the photos are taken as part of a survey for which the Society is to be curator of the negatives or color slides, a photo/catalog sheet needs to be included with the negatives/slides and the following needs to be provided below on this particular inventory site:

   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____

   ☐ See continuation sheet or attached *photo & slide catalog sheet* for list of photo roll or slide entries.
   ☐ Photos/illustrations without negatives are also in this site inventory file.

FOR CERTAIN KINDS OF PROPERTIES, INCLUDE THE FOLLOWING AS WELL

1. ***Farmstead & District:*** (List of structures and buildings, known or estimated year built, and contributing or noncontributing status)
2. ***Barn:***
   a. A sketch of the frame/truss configuration in the form of drawing a typical middle bent of the barn.
   b. A photograph of the loft showing the frame configuration along one side.
   c. A sketch floor plan of the interior space arrangements along with the barn's exterior dimensions in feet.

State Historic Preservation Office (SHPO) Use Only Below This Line

Concur with above survey opinion on National Register eligibility: ☐ *Yes* ☐ *No* ☐ *More Research Recommended*
☐ *This is a locally designated property or part of a locally designated district.*

Comments: _____

Evaluated by (name/title): _____ *Date:* _____

Paint & AC Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

2. Location, cont'd.

Iowa State University Campus, Ames, Story County, Iowa. Paint & AC is located on the north side of Kooser Drive, adjacent to other storage and support buildings associated with the Ames Laboratory.

5. Classification, cont'd.

The Paint & AC Shops is considered a building and counts as one resource.

7. Description

Site Description

The Paint & AC Shops is located in the northwest section of the Iowa State University campus, on a parcel of land bound by the Chicago & Northwestern railroad line (currently active) on the north and Kooser Drive on the south. The rail line cuts diagonally through the city of Ames and the building is sited perpendicular to the line with its main elevation (defined by the placement of the primary vehicular door) facing northwest. The building is located amid a collection of buildings sited along Kooser that provide various support services for the Ames Lab and the university. Ames Lab facilities, the Maintenance Shops and Construction Storage, are located immediately northwest of the Paint & AC, with a common concrete parking lot providing vehicular access to all three buildings.

Property Description

Paint & AC is a functional support building and, as such, bears a utilitarian appearance. The rectangular property is constructed using a poured concrete beam system with oversized rough-faced brick walls set on a concrete pad. The concrete beams remain exposed on the interior and, on the exterior, extend beyond the wall face to create a shelter over the dock on the west elevation. The use of the cantilevered, concrete beams combines with a flat, concrete fascia and watertable to create a hint of modern stylistic sensibility in this otherwise non-descript building.

Primary access to the building is gained on the west elevation, where two over-sized doors and one pedestrian entrance are located (see floor plan.) A pedestrian door is located on the south elevation. The building is devoid of windows.

As the name implies, the building provides space for Ames Laboratory facility support needs, specifically related to paint, air conditioning, and refridgeration. Although Paint & AC's interior is generally an open plan, there is a sub-division of space by function, with the paint room on the south and the air conditioning and refridgeration at the north.

Integrity Considerations

Paint & AC is a well maintained building, which retains its original form and construction materials. Because the building is not considered eligible for listing on the National Register of Historic Places, a thorough analysis of its integrity is not required at this time.

Paint & AC Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

7. Description, cont'd.

Property History

The history of the Ames Laboratory begins soon after the 1939 discovery of nuclear fission. With that discovery, the United States government became interested in focusing a national research effort on the development of nuclear energy. As part of that effort, Frank H. Spedding was called upon to organize and direct a research and development program that would work in tandem with the Manhattan Project's physics program. Spedding, who was a specialist in the chemistry of rare earth metals and thus well suited to the assignment, was head of the physical chemistry department as what was then Iowa State College.

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Having proved that a chain reaction could be self-sustained and controlled, the demand for pure uranium rose dramatically and the Ames group worked to help meet that demand. The work involved continual refinement of the enrichment process, including both the melting and casting of uranium; the process they developed remains in use today. In total, the Ames group produced more than 2 million pounds of uranium for the Manhattan Project, playing a significant role in the outcome of World War II.

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But long before the construction of Metals Development came the Lab's first building, the Metallurgy Building (later Wilhelm Hall), which was occupied in 1949. The Research Laboratory (aka Research Building and, later, Spedding Hall) was constructed and occupied by 1951. This pair became the physical center of the Ames Laboratory, with additional office and laboratory space located in the Institute for Atomic Research (also built in 1947-48 and now known as the Office and Laboratory Building) and Gilman Hall. Various secondary structures, such as Mechanical Maintenance, the

Paint & AC Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

7. Description, cont'd.

Maintenance Shop, Records Storage, and the Warehouse were added from the late 1940s through the 1990s. These buildings were constructed to provide support services and general storage space to the research and development efforts conducted in the facility's primary structures.

According to the Summerfield Day report, the Atomic Energy Commission funded the 1966-1968 construction of Paint & AC. The architecture firm of Brown, Healey and Bock designed the building and the project contractor was Carlson-Rockey, Inc.

Although the Ames Laboratory's early history may be most intimately linked to the uranium program of the war years, the facility's research broadened over the ensuring years and became no less significant in the scientific world. Under the continued influence of Frank Spedding and Harley Wilhelm, the scientists of the Ames Lab directed their efforts in a variety of areas including the development of Iowa's first nuclear reactor, the Iowa State Teaching Reactor, which "went critical" on October 19, 1959.

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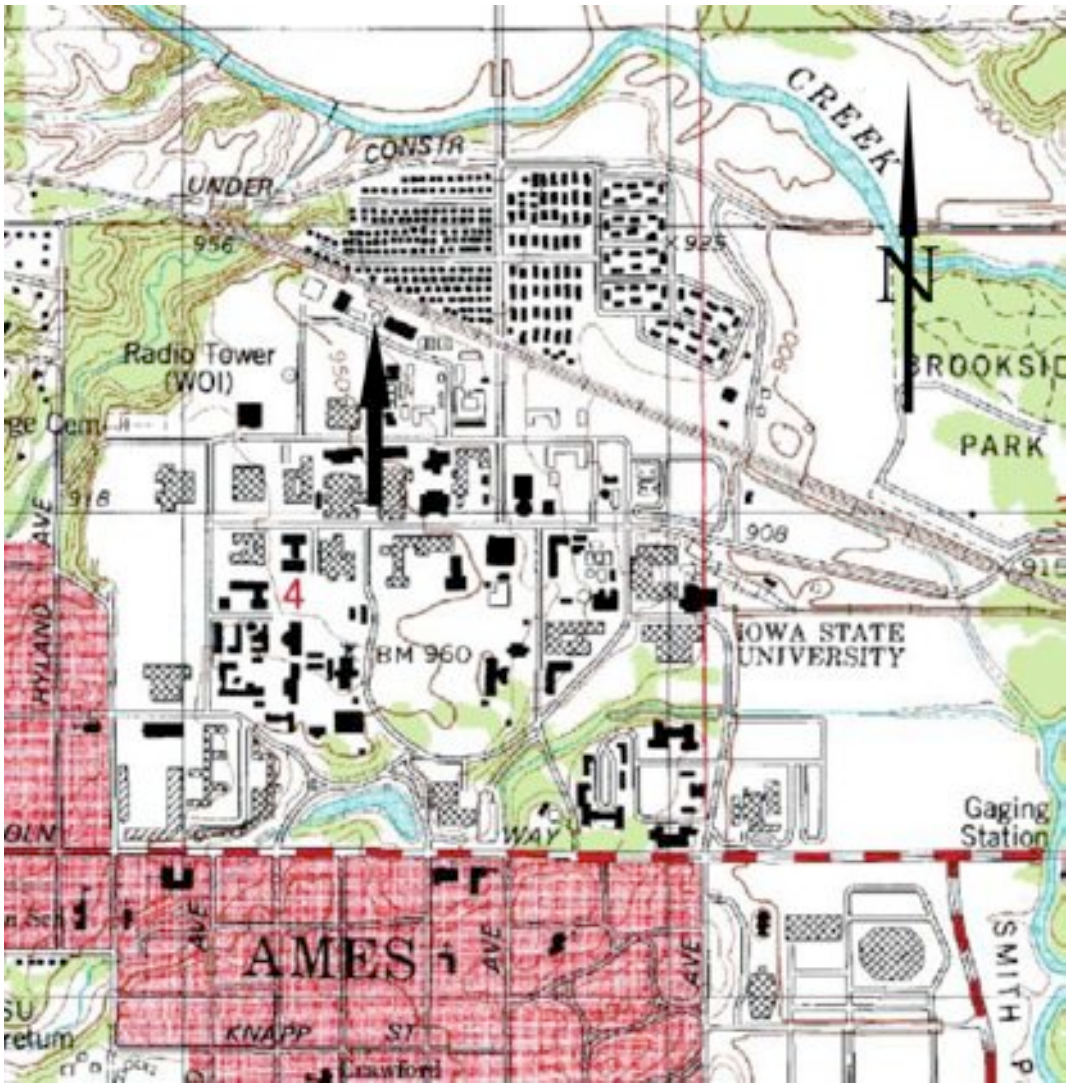
8. Statement of Significance

Because Paint & AC was constructed less than fifty years ago (the window established by the National Park Service), it is not considered eligible for listing on the National Register of Historic Places. Because the property provided direct support services for the programs of the Ames Lab, the potential for significance should be revisited once the property reaches that designated threshold (2018). Further research at that time should seek to clarify the historic functions of Paint & AC and to delineate the clear and specific correlation to the work of the Lab.

Paint & AC Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

USGS 7.5 MINUTE TOPOGRAPHIC MAP – AMES QUAD (1993)



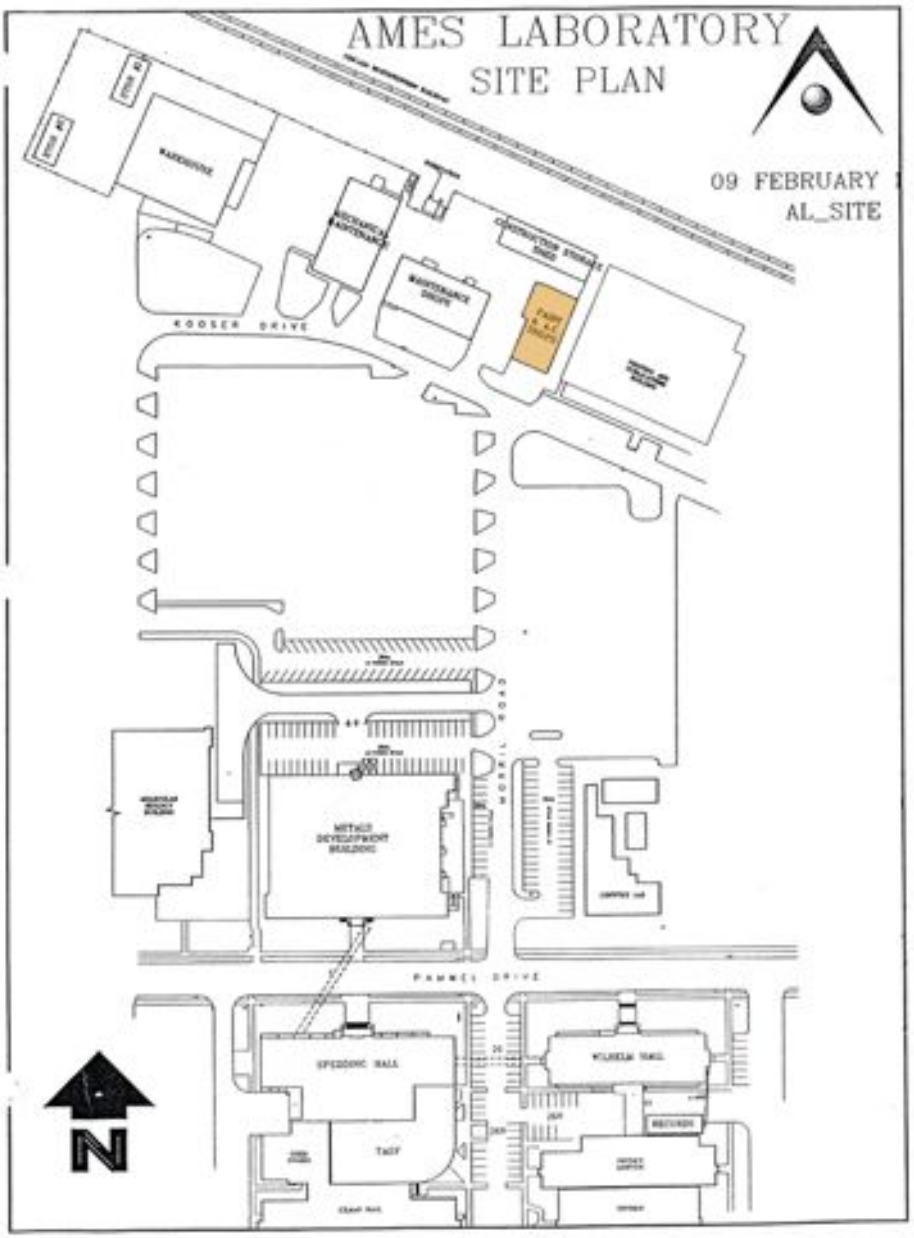
(MAP SOURCE: www.terraserver.com)

The location of the Paint & AC Shops building is indicated by the arrow.

Paint & AC Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

SITE MAP



(MAP SOURCE: Ames Lab – Facility Services – ca. 2007)

The location of Paint & AC is indicated by the orange shading.

Paint & AC Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the Paint & AC Shops building (at right) within the context of its setting on Kooser Drive – looking northwest.

(All images by AKAY Consulting – January 22, 2009)

Paint & AC Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the Paint & AC Shops building, looking northeast from Kooser Drive.

Paint & AC Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the building's dock and cantilevered, concrete beam overhang (west elevation.)

Paint & AC Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

Interior view: paint shop. Note the concrete beam ceiling and concrete floor.

Paint & AC Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Photographs

Interior view: AC and refridgeration shop.

Paint & AC Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

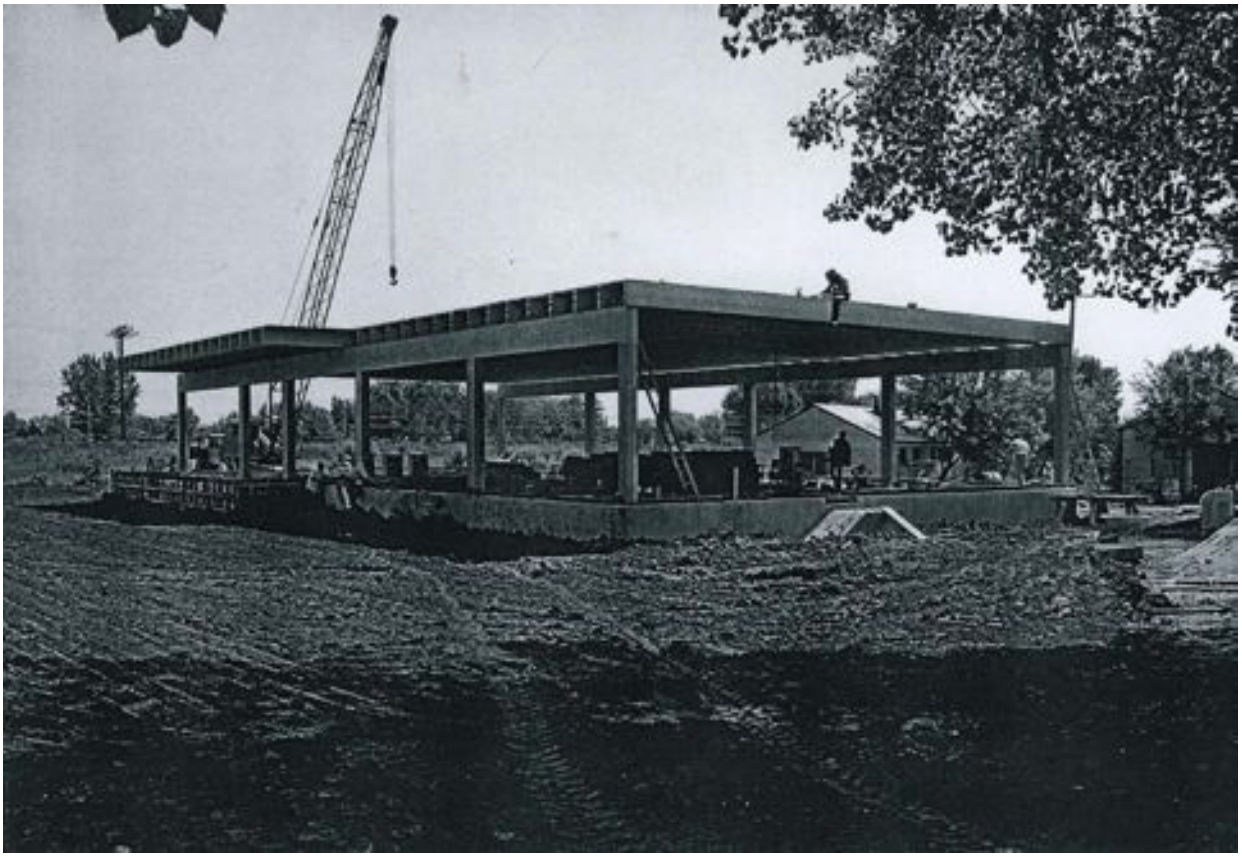
11. Additional Documentation – Photographs

View of concrete beam roof system.

Paint & AC Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Historic Image

CONSTRUCTION PHOTOGRAPH – ca.1968

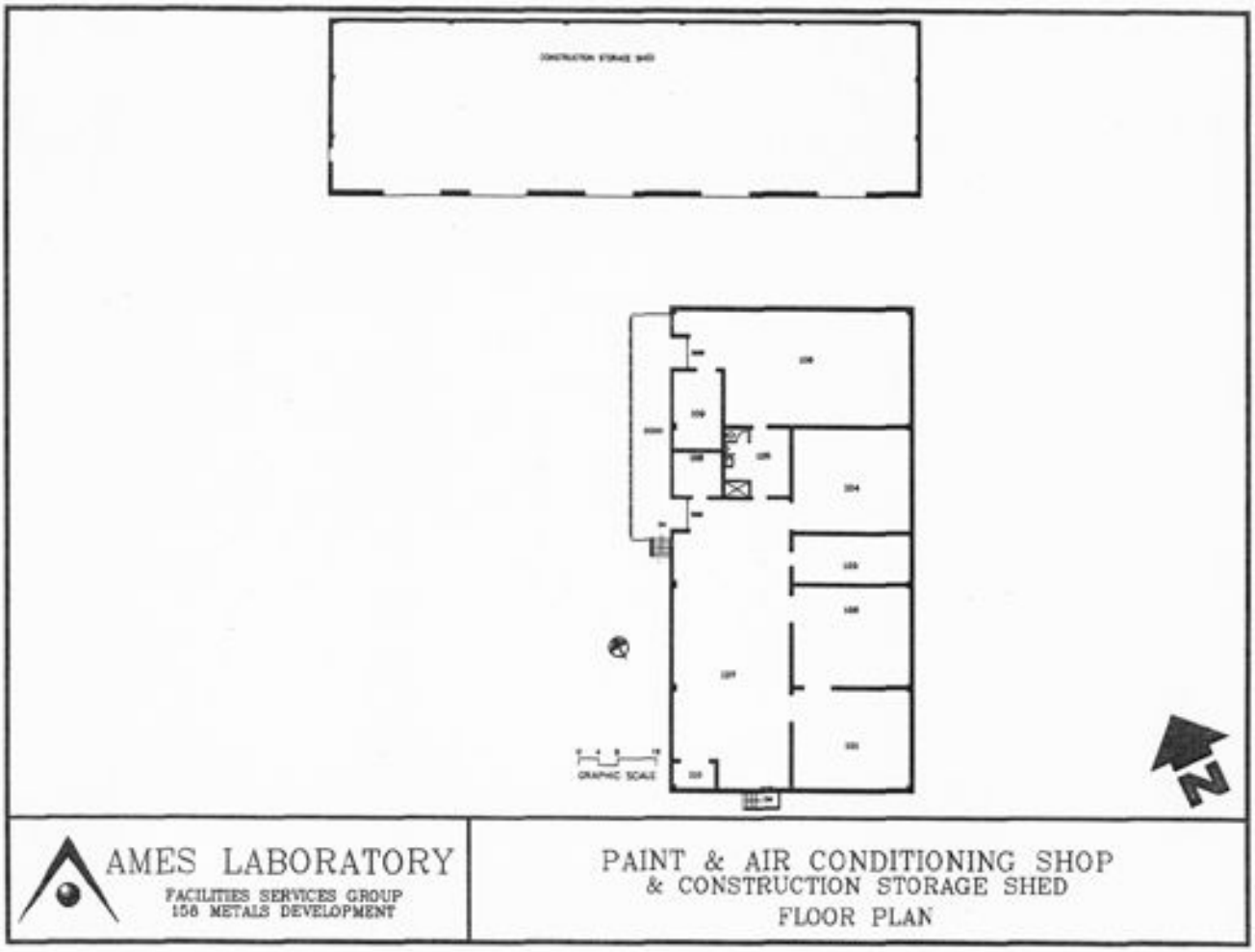


(IMAGE SOURCE: Ames Laboratory – Public Affairs)

This construction view of Paint & AC reveals the concrete beam system that sets this building apart from the other Lab support buildings, which utilizes steel systems.

Paint & AC Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Floor Plan



(SOURCE: Ames Laboratory – Facilities Services – ca 2007)

Paint & AC Shops	Story
Name of Property	County
Kooser Drive	Ames
Address	City

9. Major Bibliographic References

Ames Lab Files – Department of Public Affairs

Site Maps – Construction Dates

Ames Lab Files – Facility Management Office

Site Maps – Current Floor Plans – Historic Floor Plans

Day, H. Summerfield. *The Iowa State University Campus and Its Buildings, 1859-1979.* Ames: Iowa State University, 1980.

Internet Resources

Source for USGS Topographic maps	www.terraserver.com www.topozone.com
Legal Description	www.iowaassessors.com

Oral Informants. Dan Kayser, Sr. Environmental Specialist, Ames Laboratory. (Various, January-February, 2009)
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Shank, Wesley I. *Iowa's Historic Architect's: A Biographical Dictionary.* Iowa City: University of Iowa Press, 1999.

Site Inventory Form

State Historical Society of Iowa
(November 2005)

State Inventory No. _____ ☒ New ☐ Supplemental
☐ Part of a district with known boundaries (enter inventory no.) _____
Relationship: ☐ Contributing ☐ Noncontributing
☐ Contributes to a potential district with yet unknown boundaries
National Register Status:(any that apply) ☐ Listed ☐ De-listed ☐ NHL ☐ DOE
9-Digit SHPO Review & Compliance (R&C) Number _____
☐ Non-Extant (enter year) _____

1. Name of Property

historic name Storage 1

other names/site number

2. Location

street & number Kooser Drive
city or town Ames ☐ vicinity, county Story
Legal Description: (If Rural) Township Name Washington; Township No. 83N; Range No. 24W; Section 04; Quarter __ of Quarter __
(If Urban) Subdivision _____ Block(s) _____ Lot(s) _____

3. State/Federal Agency Certification [*Skip this Section*]

4. National Park Service Certification [*Skip this Section*]

5. Classification

Category of Property (Check only one box)
☒ building(s)
☐ district
☐ site
☐ structure
☐ object

Number of Resources within Property	*If Non-Eligible Property* Enter number of:	*If Eligible Property, enter number of:* Contributing	Noncontributing
buildings	1	__	__
sites	__	__	__
structures	__	__	__
objects	__	__	__
Total	1	__	__

Name of related project report or multiple property study (Enter "N/A" if the property is not part of a multiple property examination).
Title: N/A
Historical Architectural Data Base Number: _____

6. Function or Use

Historic Functions (Enter categories from instructions)	**Current Functions** (Enter categories from instructions)
99 OTHER; general storage	99 OTHER; general storage
_____	_____
_____	_____

7. Description

Architectural Classification (Enter categories from instructions)	**Materials** (Enter categories from instructions)	
01 NO STYLE	foundation	_____
_____	walls (visible material)	05F METAL; steel
_____	roof	05F METAL; steel
_____	other	_____

Narrative Description (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" representing your opinion of eligibility after applying relevant National Register criteria)

☐ Yes ☒ No ☐ More Research Recommended	A	Property is associated with significant events.
☐ Yes ☒ No ☐ More Research Recommended	B	Property is associated with the lives of significant persons.
☐ Yes ☒ No ☐ More Research Recommended	C	Property has distinctive architectural characteristics.
☐ Yes ☒ No ☐ More Research Recommended	D	Property yields significant information in archaeology or history.

County Story Address Kooser Drive Site Number
City Ames District Number

Criteria Considerations

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B Removed from its original location.
- ☐ C A birthplace or grave.
- ☐ D A cemetery
- ☐ E A reconstructed building, object, or structure.
- ☐ F A commemorative property.
- ☐ G Less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

_____

_____

Significant Dates

Construction date

1990 ☐ check if circa or estimated date

Other dates, including renovation

_____

Significant Person

(Complete if National Register Criterion B is marked above)

_____

_____

Architect/Builder

Architect

_____

Builder

_____

Narrative Statement of Significance (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

9. Major Bibliographical References

Bibliography ☐ See continuation sheet for citations of the books, articles, and other sources used in preparing this form

10. Geographic Data

UTM References *(OPTIONAL)*

	Zone	*Easting*	*Northing*		*Zone*	*Easting*	*Northing*
1	15	446213	4653678	2	__	_____	_____
3	__	_____	_____	4	__	_____	_____

☐ See continuation sheet for additional UTM references or comments

11. Form Prepared By

name/title Alexa McDowell, Architectural Historian
organization AKAY Consulting date 02-16-09
street & number 1226 6th Street telephone 515-491-5432
city or town Boone state IA zip code 50036

ADDITIONAL DOCUMENTATION **(Submit the following items with the completed form)**

FOR ALL PROPERTIES

1. ***Map:*** showing the property's location in a town/city or township.
2. ***Site plan:*** showing position of buildings and structures on the site in relation to public road(s).
3. ***Photographs:*** representative black and white photos. If the photos are taken as part of a survey for which the Society is to be curator of the negatives or color slides, a photo/catalog sheet needs to be included with the negatives/slides and the following needs to be provided below on this particular inventory site:

   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____

   ☐ See continuation sheet or attached *photo & slide catalog sheet* for list of photo roll or slide entries.
   ☐ Photos/illustrations without negatives are also in this site inventory file.

FOR CERTAIN KINDS OF PROPERTIES, INCLUDE THE FOLLOWING AS WELL

1. ***Farmstead & District:*** (List of structures and buildings, known or estimated year built, and contributing or noncontributing status)
2. ***Barn:***
   a. A sketch of the frame/truss configuration in the form of drawing a typical middle bent of the barn.
   b. A photograph of the loft showing the frame configuration along one side.
   c. A sketch floor plan of the interior space arrangements along with the barn's exterior dimensions in feet.

State Historic Preservation Office (SHPO) Use Only Below This Line

Concur with above survey opinion on National Register eligibility: ☐ *Yes* ☐ *No* ☐ *More Research Recommended*
☐ *This is a locally designated property or part of a locally designated district.*

Comments: _____

Evaluated by (name/title): _____ *Date:* _____

Storage 1	Story
Name of Property	County
Kooser Drive	Ames
Address	City

2. Location, cont'd.

Iowa State University Campus, Ames, Story County, Iowa. Storage 1 is located on the north side of Kooser Drive, adjacent to other storage and support buildings associated with the Ames Laboratory.

5. Classification, cont'd.

Storage 1 is considered a building and counts as one resource.

7. Description

Site Description

Storage 1 is located in the northwest section of the Iowa State University campus, on a parcel of land bound by the Chicago & Northwestern railroad line (currently active) on the north and Kooser Drive on the south. The rail line cuts diagonally through the city of Ames and the building is sited perpendicular to the line with its main elevation (defined by the placement of the primary vehicular door) facing southwest. The open land associated with Pammel Woods bounds the building site to the west.

Property Description

Storage 1 is a functional support building and, as such, bears a utilitarian appearance. The rectangular property is constructed using a steel truss roof system with steel stud walls set on a concrete pad. The gable roof and walls are finished in standing-seam steel panels. A vehicular door is located on the south elevation with one pedestrian entrance to its east. The building is devoid of windows.

As the name implies, the building provides space for general storage, specifically for excess equipment.

Integrity Considerations

Storage 1 is a well-maintained building, which retains its original form and construction materials. Because the building is not considered eligible for listing on the National Register of Historic Places, a thorough analysis of its integrity is not required at this time.

Property History

The history of the Ames Laboratory begins soon after the 1939 discovery of nuclear fission. With that discovery, the United States government became interested in focusing a national research effort on the development of nuclear energy. As part of that effort, Frank H. Spedding was called upon to organize and direct a research and development program that would work in tandem with the Manhattan Project's physics program. Spedding, who was a specialist in the chemistry of rare earth metals and thus well suited to the assignment, was head of the physical chemistry department as what was then Iowa State College.

7. Description, cont'd.

Along with other university and industrial labs across the country, the group at Ames began experimenting with better ways of producing uranium. Harley Wilhelm, a metallurgist with the Ames group, headed the team that developed a process for producing large ingots of high-grade uranium at a substantially reduced cost. The Ames group produced one-third of the uranium used in the "first successful self-sustaining chain reaction initiating the controlled release of nuclear energy."

Having proved that a chain reaction could be self-sustained and controlled, the demand for pure uranium rose dramatically and the Ames group worked to help meet that demand. The work involved continual refinement of the enrichment process, including both the melting and casting of uranium; the process they developed remains in use today. In total, the Ames group produced more than 2 million pounds of uranium for the Manhattan Project, playing a significant role in the outcome of World War II.

The Atomic Energy Commission (AEC) officially established the Ames Laboratory on May 17, 1947. The Lab's purpose was "… to build up and maintain a strong group of scientists working in the fundamental sciences." At the October 1960 dedication of the Metals Development building, John A. McCone, Chairman of the U.S. Atomic Energy Commission was asked why the AEC chose Ames to fulfill the Ames Laboratory contract and he responded that "… laboratories of this type are the lengthening shadow of the individual who has the unique and unusual capacity to search into the mysteries of the problems and also to attract as a magnet, men of dedication and skill to work with him. Many years ago, long before I had anything to do with this, the Office of Scientific Research found in Professor Spedding that man. That is why this laboratory is in Ames."

But long before the construction of Metals Development came the Lab's first building, the Metallurgy Building (later Wilhelm Hall), which was occupied in 1948. The Research Laboratory (aka Research Building and, later, Spedding Hall) was constructed and occupied by 1951. This pair became the physical center of the Ames Laboratory, with additional office and laboratory space located in the Institute for Atomic Research (also built in 1947-48 and now known as the Office and Laboratory Building) and Gilman Hall. Various secondary structures, such as Mechanical Maintenance, the Maintenance Shop, Records Storage, and the Warehouse were added from the late 1940s through the 1990s. These buildings were constructed to provide support services and general storage space to the research and development efforts conducted in the facility's primary structures.

According to the Ames Laboratory files, Storage 1 was built in 1990 for the purpose of providing space for the storage of excess equipment. No major alterations have been made to the original building.

Although the Ames Laboratory's early history may be most intimately linked to the uranium program of the war years, the facility's research broadened over the ensuring years and became no less significant in the scientific world. Under the continued influence of Frank Spedding and Harley Wilhelm, the scientists of the Ames Lab directed their efforts in a variety of areas including the development of Iowa's first nuclear reactor, the Iowa State Teaching Reactor, which "went critical" on October 19, 1959.

Storage 1	Story
Name of Property	County
Kooser Drive	Ames
Address	City

7. Description, cont'd.

Today, Ames' mission focus is on materials science, engineering, analytical instrumentation and chemical sciences that provides expertise to the Department of Energy (DOE) laboratory system in the areas of energy and environmental improvement. Ames' core capabilities are in Condensed Matter Physics and Materials Science, Chemical and Molecular Science and Applied Materials Science and Engineering; included in these is the computational support needed to carry out its mission. Ames operates the Materials Preparation Center (MPC), an Office of Science Specialized Research Center, which provides capabilities in preparation, purification, fabrication and characterization of materials in support of R&D programs throughout the world. Ames also collaborates with the DOE's applied energy technology, fossil energy and nonproliferation programs.

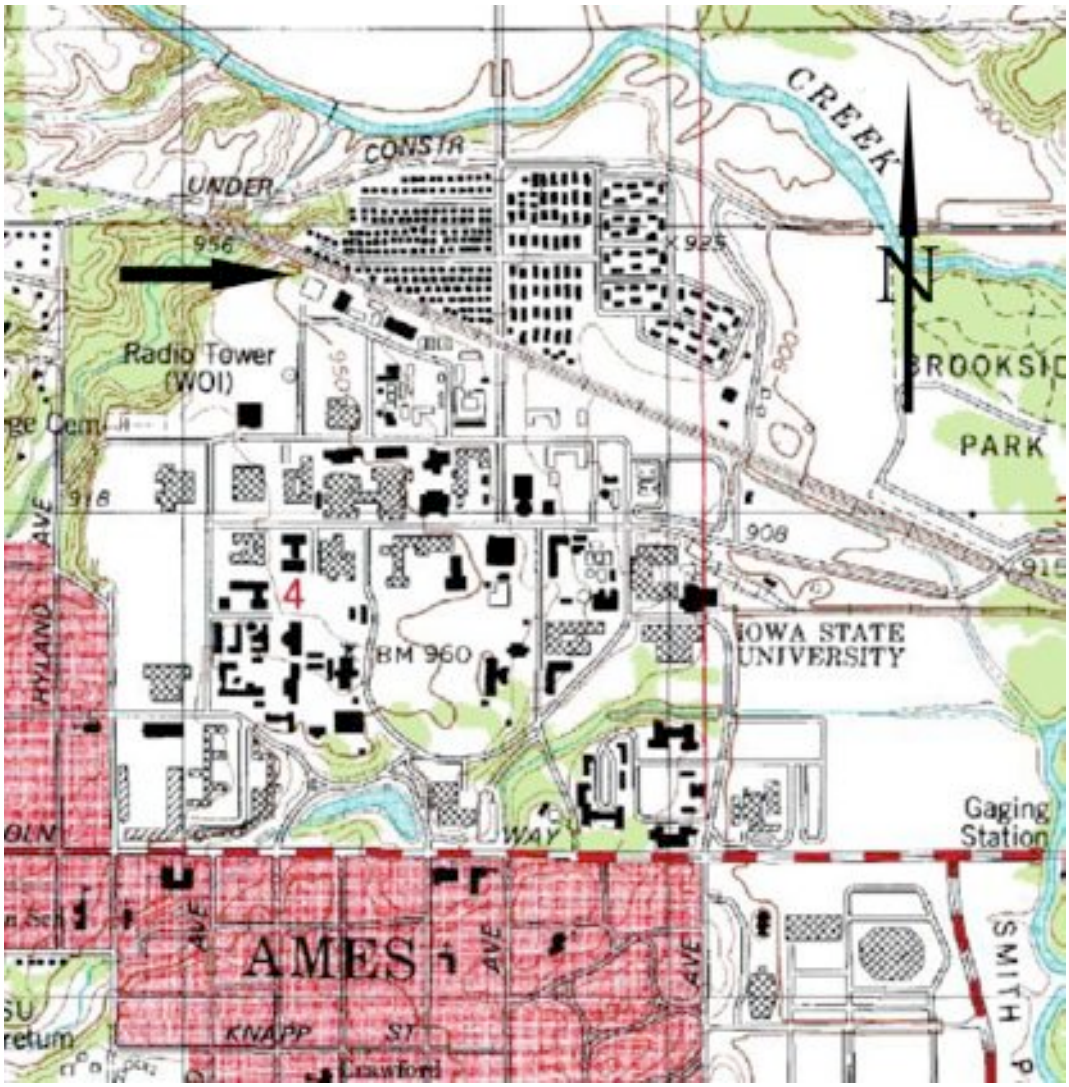
8. Statement of Significance

Because Storage 1 was constructed less than fifty years ago (the window established by the National Park Service), it is not considered eligible for listing on the National Register of Historic Places. The potential for significance could be revisited once the property reaches that designated threshold, but, given its tertiary relevance to the work of the Ames Laboratory and the building's unremarkable construction materials and methods, it is unlikely that the property will ever rise to the level of significance necessary to be considered for listing on the National Register of Historic Places.

Storage 1	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

USGS 7.5 MINUTE TOPOGRAPHIC MAP – AMES QUAD (1993)



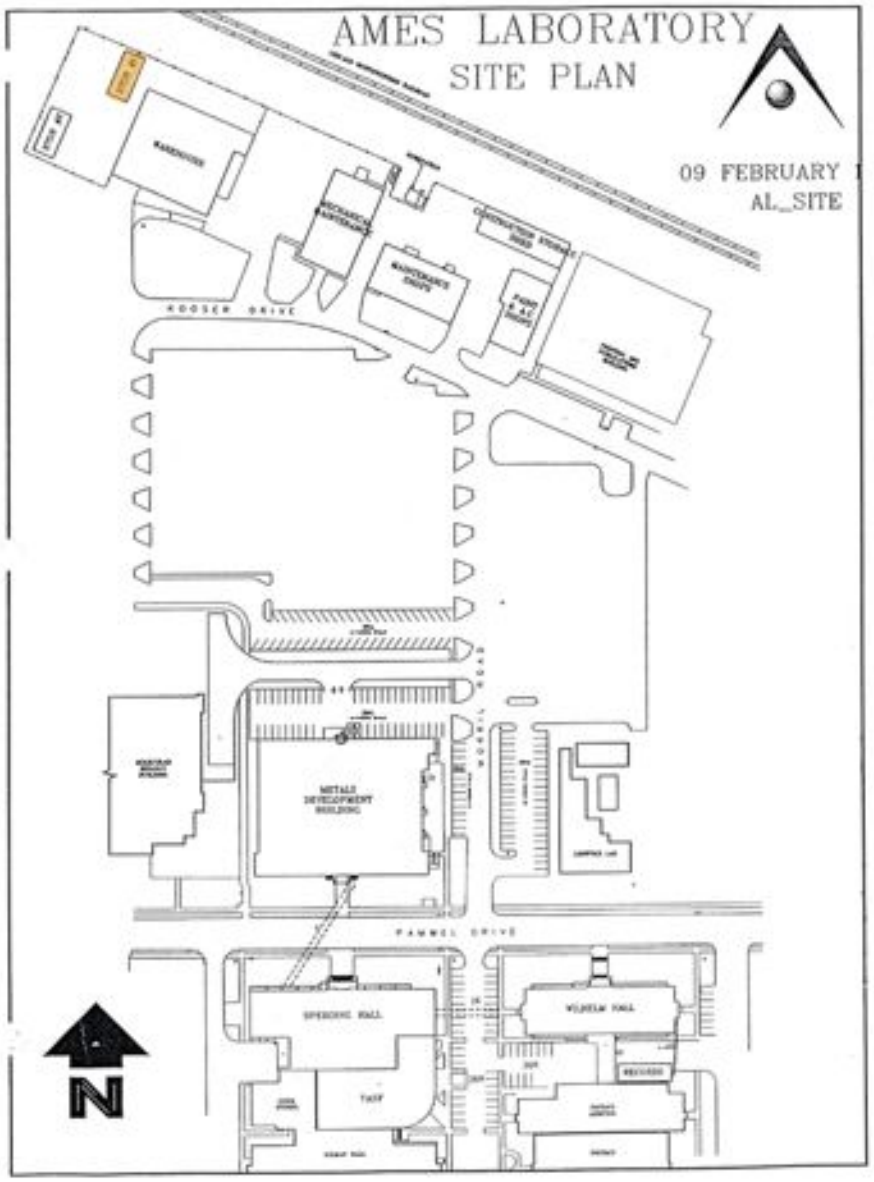
(MAP SOURCE: www.terraserver-usa.com)

The arrow indicates the location of Storage 1. Note the building was not recorded on this map, though it was constructed in 1990.

Storage 1	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

SITE MAP



(MAP SOURCE: Ames Laboratory Files – Facility Services – ca. 2007)

The orange shading indicates the location of Storage 1.

Storage 1	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation, cont'd.

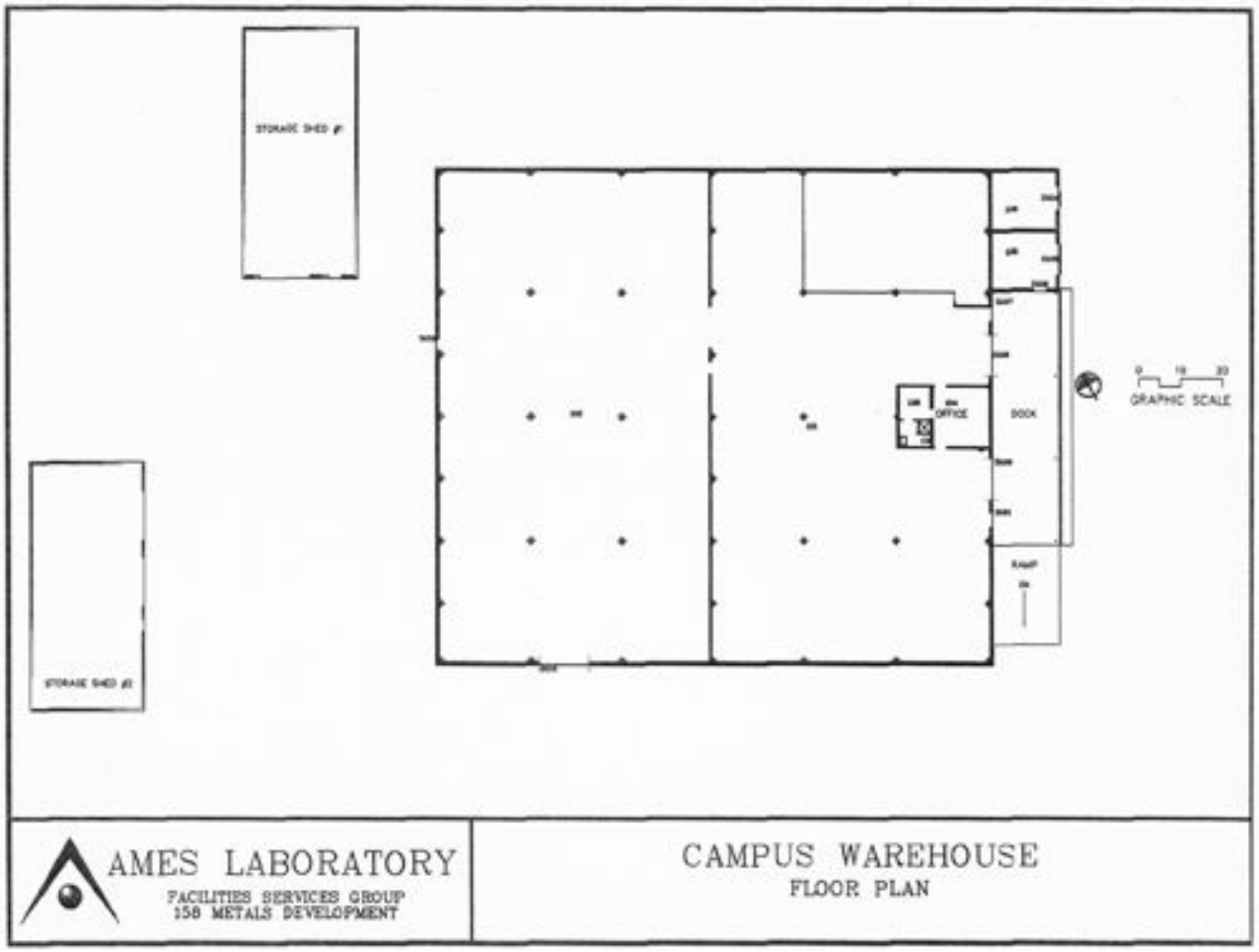
PHOTOGRAPHS

View of Storage 1, looking north from the adjoining parking area. Note the brick "Warehouse" at right.

(All images by AKAY Consulting – January 22, 2009)

Storage 1	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Plan



(MAP SOURCE: Ames Laboratory Files – Facility Services – ca. 2007)

Storage 1	Story
Name of Property	County
Kooser Drive	Ames
Address	City

9. Major Bibliographic References

Ames Lab Files – Department of Public Affairs

Site Maps – Construction Dates

Ames Lab Files – Facility Management Office

Site Maps – Current Floor Plans – Historic Floor Plans

Internet Resources

Source for USGS Topographic maps	www.terraserver.com www.topozone.com
Legal Description	www.iowaassessors.com

Oral Informants. Dan Kayser, Sr. Environmental Specialist, Ames Laboratory. (Various, January-February, 2009)
Mark Grootveld, Facility Services Group Manager, Ames Laboratory, (February 25, 2009)

Site Inventory Form

State Historical Society of Iowa
(November 2005)

State Inventory No. _____ ☒ New ☐ Supplemental
☐ Part of a district with known boundaries (enter inventory no.) _____
Relationship: ☐ Contributing ☐ Noncontributing
☐ Contributes to a potential district with yet unknown boundaries
National Register Status:(any that apply) ☐ Listed ☐ De-listed ☐ NHL ☐ DOE
9-Digit SHPO Review & Compliance (R&C) Number _____
☐ Non-Extant (enter year) _____

1. Name of Property

historic name Storage 2

other names/site number

2. Location

street & number Kooser Drive
city or town Ames ☐ vicinity, county Story
Legal Description: (If Rural) Township Name Township No. Range No. Section Quarter of Quarter
Washington 83N 24W 04 __ __
(If Urban) Subdivision _____ Block(s) _____ Lot(s) _____

3. State/Federal Agency Certification [*Skip this Section*]

4. National Park Service Certification [*Skip this Section*]

5. Classification

Category of Property (Check only one box)
☒ building(s)
☐ district
☐ site
☐ structure
☐ object

Number of Resources within Property

If Non-Eligible Property Enter number of:		*If Eligible Property, enter number of:* Contributing	Noncontributing	
1	buildings	__	__	buildings
__	sites	__	__	sites
__	structures	__	__	structures
__	objects	__	__	objects
1	Total	__	__	Total

Name of related project report or multiple property study (Enter "N/A" if the property is not part of a multiple property examination).
Title *Historical Architectural Data Base Number*
N/A _____

6. Function or Use

Historic Functions (Enter categories from instructions)
99 OTHER; general storage
_____
_____

Current Functions (Enter categories from instructions)
99 OTHER; general storage
_____
_____

7. Description

Architectural Classification (Enter categories from instructions)
01 NO STYLE
_____
_____
_____

Materials (Enter categories from instructions)
foundation _____
walls (visible material) 05F METAL; steel
roof 05F METAL; steel
other _____

Narrative Description (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" representing your opinion of eligibility after applying relevant National Register criteria)

☐ Yes ☒ No ☐ More Research Recommended	A	Property is associated with significant events.
☐ Yes ☒ No ☐ More Research Recommended	B	Property is associated with the lives of significant persons.
☐ Yes ☒ No ☐ More Research Recommended	C	Property has distinctive architectural characteristics.
☐ Yes ☒ No ☐ More Research Recommended	D	Property yields significant information in archaeology or history.

County Story Address Kooser Drive Site Number
City Ames District Number

Criteria Considerations

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B Removed from its original location.
- ☐ C A birthplace or grave.
- ☐ D A cemetery
- ☐ E A reconstructed building, object, or structure.
- ☐ F A commemorative property.
- ☐ G Less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

_____

_____

Significant Dates

Construction date

1991 ☐ check if circa or estimated date

Other dates, including renovation

_____

Significant Person

(Complete if National Register Criterion B is marked above)

_____

_____

Architect/Builder

Architect

_____

Builder

_____

Narrative Statement of Significance (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

9. Major Bibliographical References

Bibliography ☐ See continuation sheet for citations of the books, articles, and other sources used in preparing this form

10. Geographic Data

UTM References *(OPTIONAL)*

	Zone	*Easting*	*Northing*		*Zone*	*Easting*	*Northing*
1	15	446213	4653678	2	__	_____	_____
3	__	_____	_____	4	__	_____	_____

☐ See continuation sheet for additional UTM references or comments

11. Form Prepared By

name/title Alexa McDowell, Architectural Historian
organization AKAY Consulting date 02-16-09
street & number 1226 6th Street telephone 515-491-5432
city or town Boone state IA zip code 50036

ADDITIONAL DOCUMENTATION **(Submit the following items with the completed form)**

FOR ALL PROPERTIES

1. ***Map:*** showing the property's location in a town/city or township.
2. ***Site plan:*** showing position of buildings and structures on the site in relation to public road(s).
3. ***Photographs:*** representative black and white photos. If the photos are taken as part of a survey for which the Society is to be curator of the negatives or color slides, a photo/catalog sheet needs to be included with the negatives/slides and the following needs to be provided below on this particular inventory site:

   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____

   ☐ See continuation sheet or attached *photo & slide catalog sheet* for list of photo roll or slide entries.
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FOR CERTAIN KINDS OF PROPERTIES, INCLUDE THE FOLLOWING AS WELL

1. ***Farmstead & District:*** (List of structures and buildings, known or estimated year built, and contributing or noncontributing status)
2. ***Barn:***
   a. A sketch of the frame/truss configuration in the form of drawing a typical middle bent of the barn.
   b. A photograph of the loft showing the frame configuration along one side.
   c. A sketch floor plan of the interior space arrangements along with the barn's exterior dimensions in feet.

State Historic Preservation Office (SHPO) Use Only Below This Line

Concur with above survey opinion on National Register eligibility: ☐ *Yes* ☐ *No* ☐ *More Research Recommended*
☐ *This is a locally designated property or part of a locally designated district.*

Comments: _____

Evaluated by (name/title): _____ *Date:* _____

Storage 2	Story
Name of Property	County
Kooser Drive	Ames
Address	City

2. Location, cont'd.

Iowa State University Campus, Ames, Story County, Iowa. Storage 2 is located on the north side of Kooser Drive, adjacent to other storage and support buildings associated with the Ames Laboratory.

5. Classification, cont'd.

Storage 2 is considered a building and counts as one resource.

7. Description

Site Description

Storage 2 is located in the northwest section of the Iowa State University campus, on a parcel of land bound by the Chicago & Northwestern railroad line (currently active) on the north and Kooser Drive on the south. The rail line cuts diagonally through the city of Ames and the building is sited perpendicular to the line with its main elevation (defined by the placement of three vehicular doors) facing southeast. The open land associated with Pammel Woods bounds the building site to the west.

Property Description

Storage 1 is a functional support building and, as such, bears a utilitarian appearance. The rectangular property is constructed using a steel truss roof system with steel stud walls set on a concrete pad. The gable roof and walls are finished in standing-seam steel panels. Two vehicular doors and one pedestrian entrance are asymmetrically placed on the east elevation. The building is devoid of windows.

As the name implies, the building provides space for general storage, specifically for excess equipment.

Integrity Considerations

Storage 2 is a well-maintained building, which appears to retain its original form and construction materials. Because the building is not considered eligible for listing on the National Register of Historic Places, a thorough analysis of its integrity is not required at this time.

Property History

The history of the Ames Laboratory begins soon after the 1939 discovery of nuclear fission. With that discovery, the United States government became interested in focusing a national research effort on the development of nuclear energy. As part of that effort, Frank H. Spedding was called upon to organize and direct a research and development program that would work in tandem with the

Storage 2	Story
Name of Property	County
Kooser Drive	Ames
Address	City

7. Description, cont'd.

Manhattan Project's physics program. Spedding, who was a specialist in the chemistry of rare earth metals and thus well suited to the assignment, was head of the physical chemistry department as what was then Iowa State College.

Along with other university and industrial labs across the country, the group at Ames began experimenting with better ways of producing uranium. Harley Wilhelm, a metallurgist with the Ames group, headed the team that developed a process for producing large ingots of high-grade uranium at a substantially reduced cost. The Ames group produced one-third of the uranium used in the "first successful self-sustaining chain reaction initiating the controlled release of nuclear energy."

Having proved that a chain reaction could be self-sustained and controlled, the demand for pure uranium rose dramatically and the Ames group worked to help meet that demand. The work involved continual refinement of the enrichment process, including both the melting and casting of uranium; the process they developed remains in use today. In total, the Ames group produced more than 2 million pounds of uranium for the Manhattan Project, playing a significant role in the outcome of World War II.

The Atomic Energy Commission (AEC) officially established the Ames Laboratory on May 17, 1947. The Lab's purpose was "… to build up and maintain a strong group of scientists working in the fundamental sciences." At the October 1960 dedication of the Metals Development building, John A. McCone, Chairman of the U.S. Atomic Energy Commission was asked why the AEC chose Ames to fulfill the Ames Laboratory contract and he responded that "… laboratories of this type are the lengthening shadow of the individual who has the unique and unusual capacity to search into the mysteries of the problems and also to attract as a magnet, men of dedication and skill to work with him. Many years ago, long before I had anything to do with this, the Office of Scientific Research found in Professor Spedding that man. That is why this laboratory is in Ames."

But long before the construction of Metals Development came the Lab's first building, the Metallurgy Building (later Wilhelm Hall), which was occupied in 1949. The Research Laboratory (aka Research Building and, later, Spedding Hall) was constructed and occupied by 1951. This pair became the physical center of the Ames Laboratory, with additional office and laboratory space located in the Institute for Atomic Research (also built in 1947-48 and now known as the Office and Laboratory Building) and Gilman Hall. Various secondary structures, such as Mechanical Maintenance, the Maintenance Shop, Records Storage, and the Warehouse were added from the late 1940s through the 1990s. These buildings were constructed to provide support services and general storage space to the research and development efforts conducted in the facility's primary structures.

According to the Ames Laboratory files, Storage was built in 1991 for the purpose of providing space for the storage of excess equipment. No major alterations have been made to the original building.

Storage 2	Story
Name of Property	County
Kooser Drive	Ames
Address	City

7. Description, cont'd.

Although the Ames Laboratory's early history may be most intimately linked to the uranium program of the war years, the facility's research broadened over the ensuring years and became no less significant in the scientific world. Under the continued influence of Frank Spedding and Harley Wilhelm, the scientists of the Ames Lab directed their efforts in a variety of areas including the development of Iowa's first nuclear reactor, the Iowa State Teaching Reactor, which "went critical" on October 19, 1959.

Today, Ames' mission focus is on materials science, engineering, analytical instrumentation and chemical sciences that provides expertise to the Department of Energy (DOE) laboratory system in the areas of energy and environmental improvement. Ames' core capabilities are in Condensed Matter Physics and Materials Science, Chemical and Molecular Science and Applied Materials Science and Engineering; included in these is the computational support needed to carry out its mission. Ames operates the Materials Preparation Center (MPC), an Office of Science Specialized Research Center, which provides capabilities in preparation, purification, fabrication and characterization of materials in support of R&D programs throughout the world. Ames also collaborates with the DOE's applied energy technology, fossil energy and nonproliferation programs.

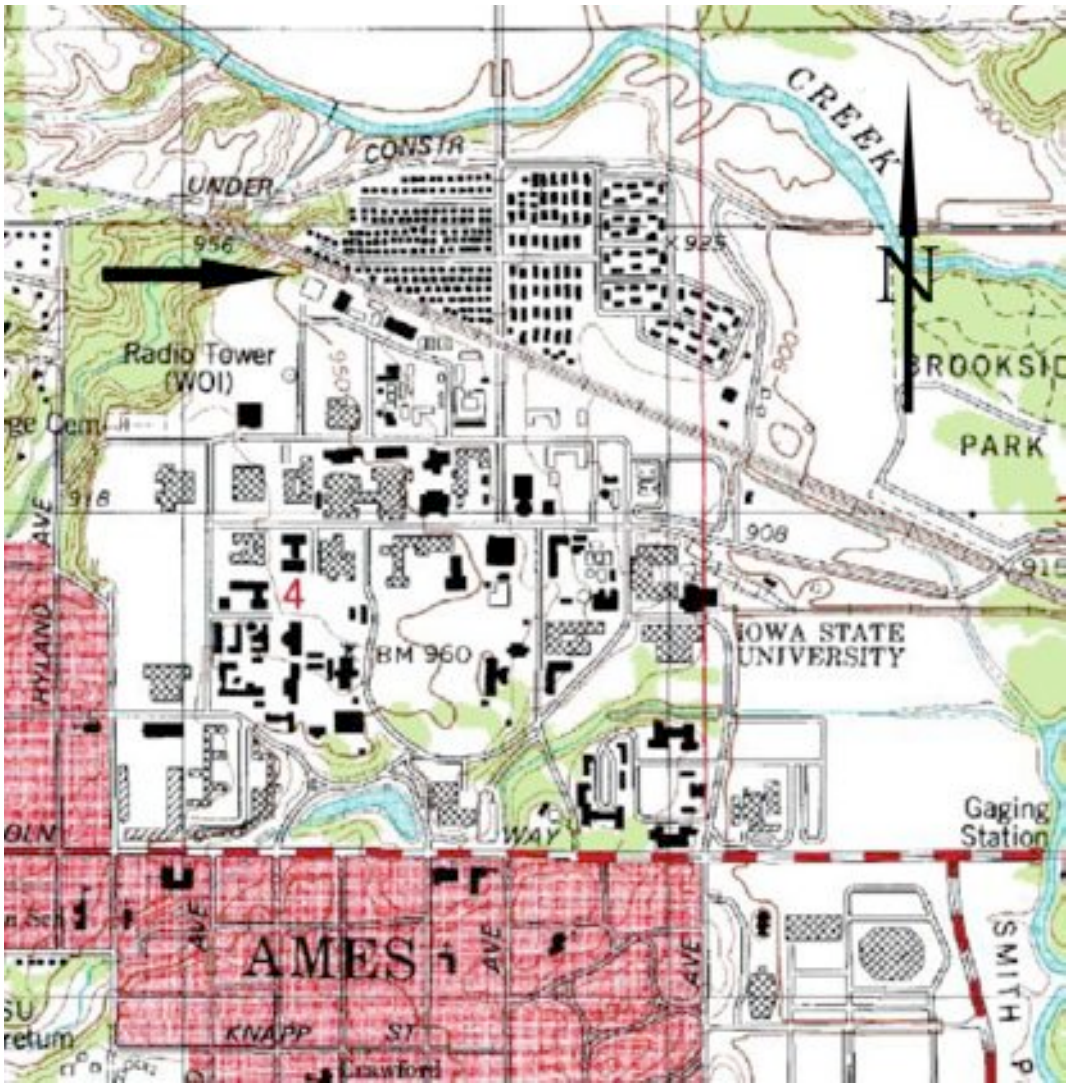
8. Statement of Significance

Because Storage 2 was constructed less that fifty years ago (the window established by the National Park Service), it is not considered eligible for listing on the National Register of Historic Places. The potential for significance could be revisited once the property reaches that designated threshold, but, given its tertiary relevance to the work of the Ames Laboratory and the building's unremarkable construction materials and methods, it is unlikely that the property will ever rise to the level of significance necessary to be considered for listing on the National Register of Historic Places.

Storage 2	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

USGS 7.5 MINUTE TOPOGRAPHIC MAP – AMES QUAD (1993)



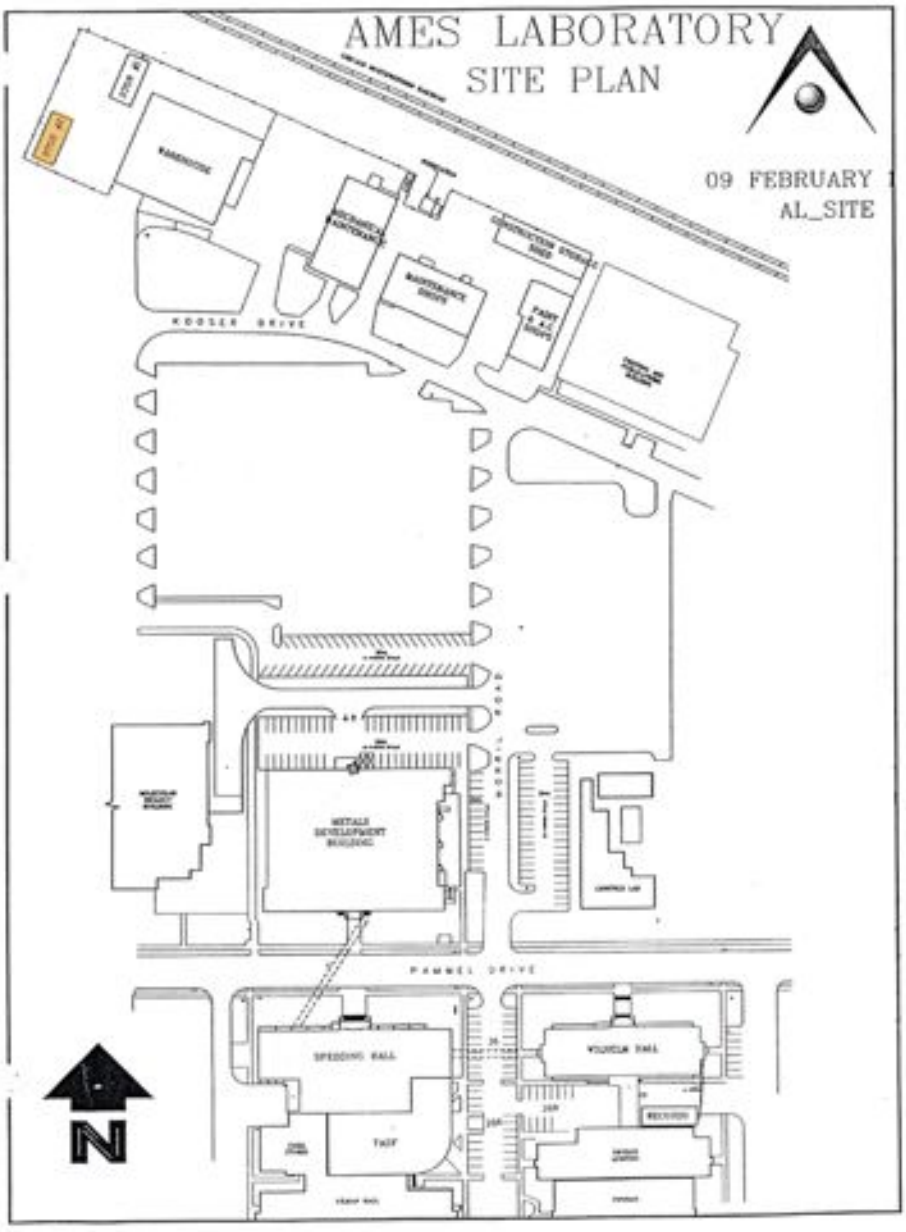
(MAP SOURCE: www.terraserver-usa.com)

The arrow indicates the location of Storage 2. Note the building was not recorded on this map, though it was constructed in 1991.

Storage 2	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

SITE MAP



(MAP SOURCE: Ames Laboratory – Facility Services – ca. 2007)

The orange shading indicates the location of Storage 2.

Storage 2	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation, cont'd.

PHOTOGRAPHS

View of Storage 2, looking southwest from Storage 1. Note the small, wood storage building (Storage 3) at left.

(All images by AKAY Consulting – January 22, 2009)

Storage 2	Story
Name of Property	County
Kooser Drive	Ames
Address	City

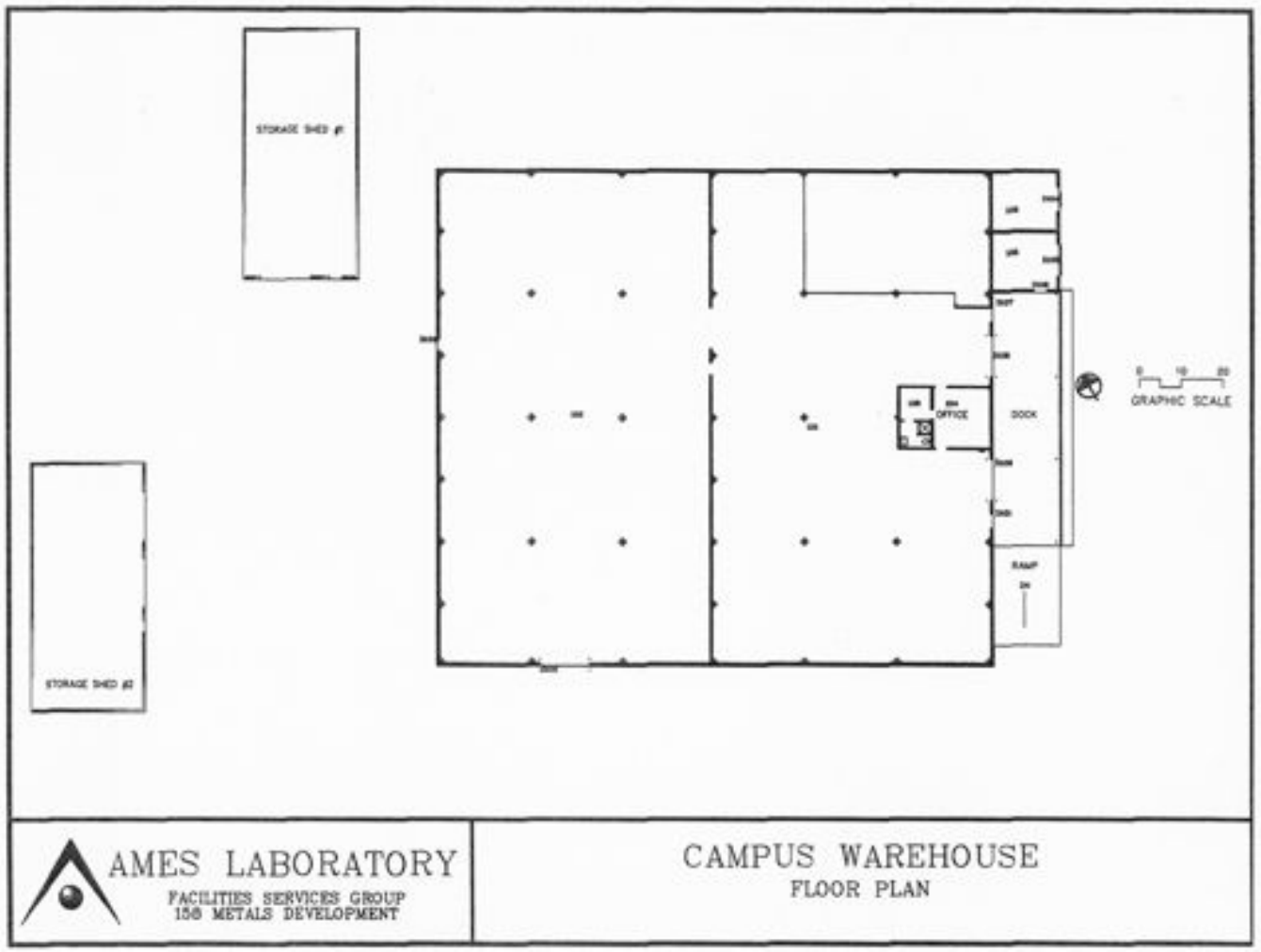
11. Additional Documentation, cont'd.

PHOTOGRAPHS

View of Storage 2, looking southwest from Storage 1.

Storage 2	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Plan



(MAP SOURCE: Ames Laboratory Files – Facility Services – ca. 2007)

Storage 2	Story
Name of Property	County
Kooser Drive	Ames
Address	City

9. Major Bibliographic References

Ames Lab Files – Department of Public Affairs

Site Maps – Construction Dates – *Ames Lab Insider* (various issues) – Historic Images

Ames Lab Files – Facility Services Office

Site Maps – Current Floor Plans – Historic Floor Plans

Internet Resources

Source for USGS Topographic maps	www.terraserver.com www.trails.com
Legal Description	www.iowaassessors.com

Oral Informants. Dan Kayser, Sr. Environmental Specialist, Ames Laboratory. (Various, January-February, 2009)

Mark Grootveld, Facility Services Group Manager, Ames Laboratory, (February 25, 2009)

Site Inventory Form

State Historical Society of Iowa
(November 2005)

State Inventory No. _____ ☒ New ☐ Supplemental
☐ Part of a district with known boundaries (enter inventory no.) _____
Relationship: ☐ Contributing ☐ Noncontributing
☐ Contributes to a potential district with yet unknown boundaries
National Register Status:(any that apply) ☐ Listed ☐ De-listed ☐ NHL ☐ DOE
9-Digit SHPO Review & Compliance (R&C) Number _____
☐ Non-Extant (enter year) _____

1. Name of Property

historic name Storage 3

other names/site number

2. Location

street & number Kooser Drive
city or town Ames ☐ vicinity, county Story
Legal Description: (If Rural) Township Name Washington; Township No. 83N; Range No. 24W; Section 04; Quarter __ of Quarter __
(If Urban) Subdivision _____ Block(s) _____ Lot(s) _____

3. State/Federal Agency Certification [*Skip this Section*]

4. National Park Service Certification [*Skip this Section*]

5. Classification

Category of Property (Check only one box)
☒ building(s)
☐ district
☐ site
☐ structure
☐ object

Number of Resources within Property				
If Non-Eligible Property Enter number of:		*If Eligible Property, enter number of:* Contributing	Noncontributing	
1	buildings	__	__	buildings
__	sites	__	__	sites
__	structures	__	__	structures
__	objects	__	__	objects
1	Total	__	__	Total

Name of related project report or multiple property study (Enter "N/A" if the property is not part of a multiple property examination).
Title N/A
Historical Architectural Data Base Number _____

6. Function or Use

Historic Functions (Enter categories from instructions)
99 OTHER; general storage
_____
_____

Current Functions (Enter categories from instructions)
99 OTHER; general storage
_____
_____

7. Description

Architectural Classification (Enter categories from instructions)
01 NO STYLE
_____
_____
_____

Materials (Enter categories from instructions)
foundation _____
walls (visible material) 02 WOOD
roof _____
other _____

Narrative Description (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" representing your opinion of eligibility after applying relevant National Register criteria)

☐ Yes ☒ No ☐ More Research Recommended	A	Property is associated with significant events.
☐ Yes ☒ No ☐ More Research Recommended	B	Property is associated with the lives of significant persons.
☐ Yes ☒ No ☐ More Research Recommended	C	Property has distinctive architectural characteristics.
☐ Yes ☒ No ☐ More Research Recommended	D	Property yields significant information in archaeology or history.

County Story Address Kooser Drive Site Number
City Ames District Number

Criteria Considerations

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B Removed from its original location.
- ☐ C A birthplace or grave.
- ☐ D A cemetery
- ☐ E A reconstructed building, object, or structure.
- ☐ F A commemorative property.
- ☐ G Less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

_____

_____

Significant Dates

Construction date

1945 ☒ check if circa or estimated date

Other dates, including renovation

_____

Significant Person

(Complete if National Register Criterion B is marked above)

_____

_____

Architect/Builder

Architect

_____

Builder

_____

Narrative Statement of Significance (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

9. Major Bibliographical References

Bibliography ☐ See continuation sheet for citations of the books, articles, and other sources used in preparing this form

10. Geographic Data

UTM References *(OPTIONAL)*

	Zone	*Easting*	*Northing*		*Zone*	*Easting*	*Northing*
1	15	446213	4653678	2	__	_____	_____
3	__	_____	_____	4	__	_____	_____

☐ See continuation sheet for additional UTM references or comments

11. Form Prepared By

name/title Alexa McDowell, Architectural Historian
organization AKAY Consulting date 02-15-09
street & number 1226 6th Street telephone 515-491-5432
city or town Boone state IA zip code 50036

ADDITIONAL DOCUMENTATION **(Submit the following items with the completed form)**

FOR ALL PROPERTIES

1. ***Map:*** showing the property's location in a town/city or township.
2. ***Site plan:*** showing position of buildings and structures on the site in relation to public road(s).
3. ***Photographs:*** representative black and white photos. If the photos are taken as part of a survey for which the Society is to be curator of the negatives or color slides, a photo/catalog sheet needs to be included with the negatives/slides and the following needs to be provided below on this particular inventory site:

   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____

   ☐ See continuation sheet or attached *photo & slide catalog sheet* for list of photo roll or slide entries.
   ☐ Photos/illustrations without negatives are also in this site inventory file.

FOR CERTAIN KINDS OF PROPERTIES, INCLUDE THE FOLLOWING AS WELL

1. ***Farmstead & District:*** (List of structures and buildings, known or estimated year built, and contributing or noncontributing status)
2. ***Barn:***
   a. A sketch of the frame/truss configuration in the form of drawing a typical middle bent of the barn.
   b. A photograph of the loft showing the frame configuration along one side.
   c. A sketch floor plan of the interior space arrangements along with the barn's exterior dimensions in feet.

State Historic Preservation Office (SHPO) Use Only Below This Line

Concur with above survey opinion on National Register eligibility: ☐ *Yes* ☐ *No* ☐ *More Research Recommended*
☐ *This is a locally designated property or part of a locally designated district.*

Comments: _____

Evaluated by (name/title): _____ *Date:* _____

Storage 3	Story
Name of Property	County
Kooser Drive	Ames
Address	City

2. Location, cont'd.

Iowa State University Campus, Ames, Story County, Iowa. Storage 3 is located on the north side of Kooser Drive, adjacent to other storage and support buildings associated with the Ames Lab and/or the university.

5. Classification, cont'd.

Storage 3 is considered a building and counts as one resource.

7. Description

Site Description

Storage 3 is located in the northwest section of the Iowa State University campus, on a parcel of land bound by the Chicago & Northwestern railroad line (currently active) on the north and Kooser Drive on the south. The building is sited with its ridgeline running east to west. The building lacks a façade. Storage 3 is located at the west end of a collection of buildings sited along Kooser that provide various support services for the Ames Laboratory and the university. Ames Laboratory facilities, Storage 1 and Storage 2, are located adjacent to Storage 3; a common concrete parking lot provides vehicular access to all three buildings.

Property Description

Storage 3 is a functional support building and, as such, bears a utilitarian appearance. As opposed to Storage 1 and Storage 2, which are both steel constructions, the diminutive Storage 3 has a wood frame and its exterior walls are sheathed in horizontal, wood plank siding. The 18' x 20' property features a modestly pitched gable roof (likely sheathed in asphalt.) The building is approximately 12' high at the peak. Oversized, hinged doors on the gable ends open wide to allow access to the interior, which stores primarily miscellaneous wood. The building is devoid of windows.

Integrity Considerations

Storage 3 is a well maintained building, which retains its original form and construction materials. Because the building is not considered eligible for listing on the National Register of Historic Places, a thorough analysis of its integrity is not required at this time.

Property History

The history of the Ames Laboratory begins soon after the 1939 discovery of nuclear fission. With that discovery, the United States government became interested in focusing a national research effort on the development of nuclear energy. As part of that effort, Frank H. Spedding was called upon to organize and direct a research and development program that would work in tandem with the Manhattan Project's physics program. Spedding, who was a specialist in the chemistry of rare earth metals and thus well suited to the assignment, was head of the physical chemistry department as what was then Iowa State College.

Storage 3	Story
Name of Property	County
Kooser Drive	Ames
Address	City

7. Description, cont'd.

Along with other university and industrial labs across the country, the group at Ames began experimenting with better ways of producing uranium. Harley Wilhelm, a metallurgist with the Ames group, headed the team that developed a process for producing large ingots of high-grade uranium at a substantially reduced cost. The Ames group produced one-third of the uranium used in the "first successful self-sustaining chain reaction initiating the controlled release of nuclear energy."

Having proved that a chain reaction could be self-sustained and controlled, the demand for pure uranium rose dramatically and the Ames group worked to help meet that demand. The work involved continual refinement of the enrichment process, including both the melting and casting of uranium; the process they developed remains in use today. In total, the Ames group produced more than 2 million pounds of uranium for the Manhattan Project, playing a significant role in the outcome of World War II.

The Atomic Energy Commission (AEC) officially established the Ames Laboratory on May 17, 1947. The Lab's purpose was "… to build up and maintain a strong group of scientists working in the fundamental sciences." At the October 1960 dedication of the Metals Development building, John A. McCone, Chairman of the U.S. Atomic Energy Commission was asked why the AEC chose Ames to fulfill the Ames Laboratory contract and he responded that "… laboratories of this type are the lengthening shadow of the individual who has the unique and unusual capacity to search into the mysteries of the problems and also to attract as a magnet, men of dedication and skill to work with him. Many years ago, long before I had anything to do with this, the Office of Scientific Research found in Professor Spedding that man. That is why this laboratory is in Ames."

But long before the construction of Metals Development came the Lab's first building, the Metallurgy Building (later Wilhelm Hall), which was occupied in 1948. The Research Laboratory (aka Research Building and, later, Spedding Hall) was constructed and occupied by 1950. This pair became the physical center of the Ames Laboratory, with additional office and laboratory space located in the Institute for Atomic Research (also built in 1947-48 and now known as the Office and Laboratory Building) and Gilman Hall. Various secondary structures, such as Mechanical Maintenance, the Maintenance Shop, Records Storage, and the Warehouse were added from the late 1940s through the 1990s. These buildings were constructed to provide support services and general storage space to the research and development efforts conducted in the facility's primary structures.

The construction date of Storage 3 is unknown; Ames Lab files have no record of the storage building.

Although the Ames Laboratory's early history may be most intimately linked to the uranium program of the war years, the facility's research broadened over the ensuring years and became no less significant in the scientific world. Under the continued influence of Frank Spedding and Harley Wilhelm, the scientists of the Ames Lab directed their efforts in a variety of areas including the development of Iowa's first nuclear reactor, the Iowa State Teaching Reactor, which "went critical" on October 19, 1959.

Storage 3	Story
Name of Property	County
Kooser Drive	Ames
Address	City

7. Description, cont'd.

Today, Ames' mission focus is on materials science, engineering, analytical instrumentation and chemical sciences that provides expertise to the Department of Energy (DOE) laboratory system in the areas of energy and environmental improvement. Ames' core capabilities are in Condensed Matter Physics and Materials Science, Chemical and Molecular Science and Applied Materials Science and Engineering; included in these is the computational support needed to carry out its mission. Ames operates the Materials Preparation Center (MPC), an Office of Science Specialized Research Center, which provides capabilities in preparation, purification, fabrication and characterization of materials in support of R&D programs throughout the world. Ames also collaborates with the DOE's applied energy technology, fossil energy and nonproliferation programs.

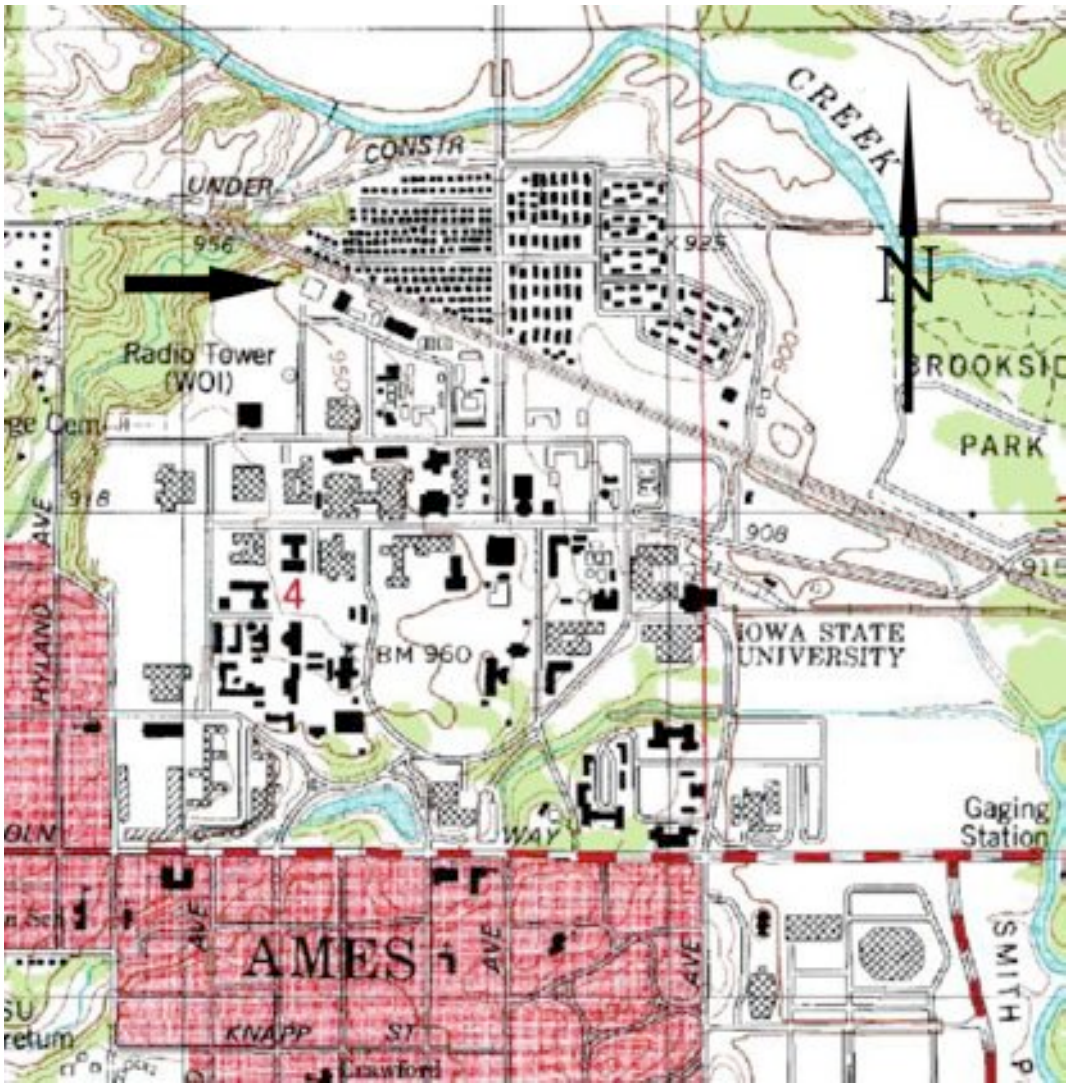
8. Statement of Significance

Given its tertiary relevance to the work of the Ames Lab and the building's unremarkable construction materials and methods, Storage 3 is not considered eligible for listing on the National Register of Historic Places. Should further information become known that ties the building more directly to the work of the Ames Lab, a re-evaluation of that finding would be warranted.

Storage 3	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

USGS 7.5 MINUTE TOPOGRAPHIC MAP – AMES QUAD (1993)



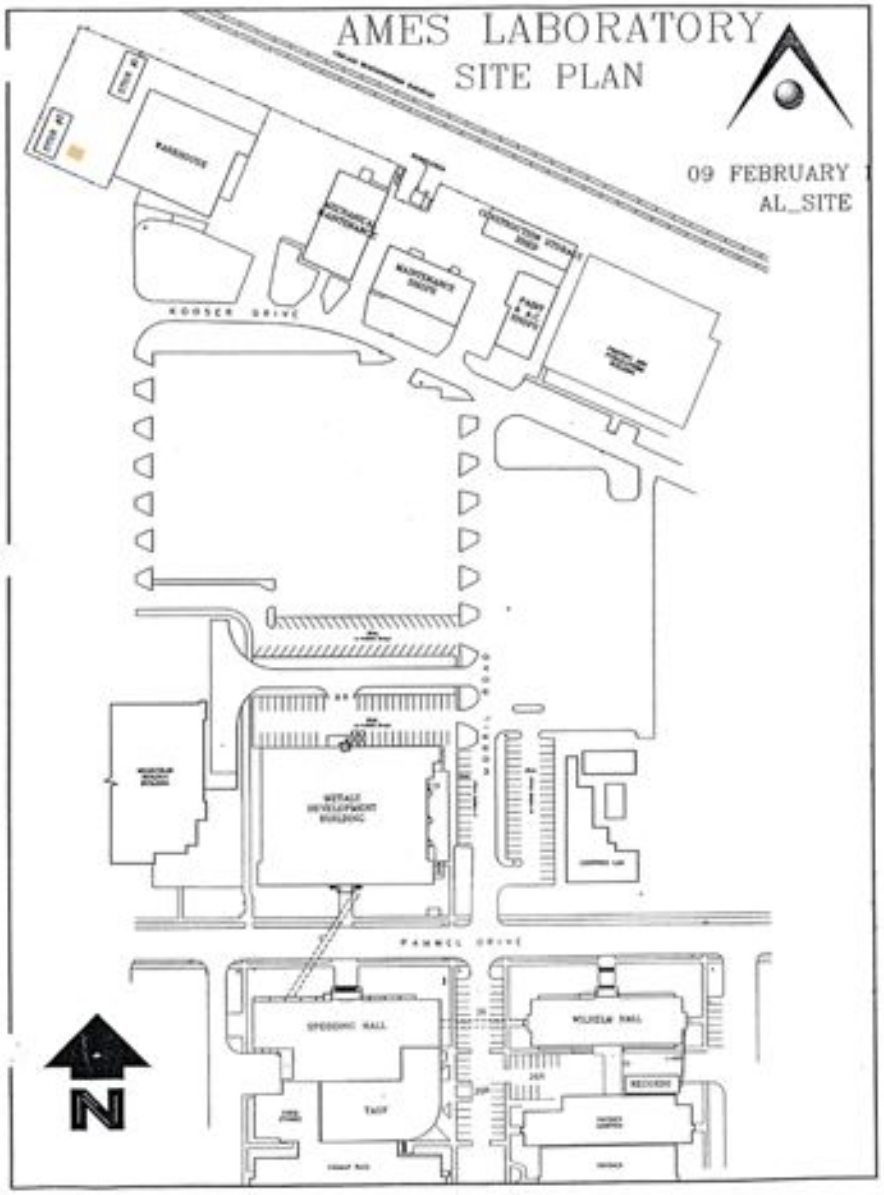
(MAP SOURCE: www.terraserver-usa.com)

The location of Storage 3 is indicated by the arrow.

Storage 3	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation – Maps

SITE MAP



(MAP SOURCE: Ames Laboratory Files – Facility Services – ca. 2007)

The location of Storage 3 is indicated by orange shading.

Storage 3	Story
Name of Property	County
Kooser Drive	Ames
Address	City

11. Additional Documentation, cont'd.

PHOTOGRAPHS

View of Storage 3, looking southwest. Note Storage 2 at right.

(All images by AKAY Consulting – January 22, 2009)

Storage 3	Story
Name of Property	County
Kooser Drive	Ames
Address	City

9. Major Bibliographic References

Ames Lab Files – Department of Public Affairs
Site Maps – Construction Dates – *Ames Lab Insider* (various issues) – Historic Images

Ames Lab Files – Facility Services Office
Site Maps – Current Floor Plans – Historic Floor Plans

Day, H. Summerfield. *The Iowa State University Campus and Its Buildings, 1859-1979.* Ames: Iowa State University, 1980.

Internet Resources

Source for USGS Topographic maps	www.terraserver.com www.trails.com
Legal Description	www.iowaassessors.com

Oral Informants. Dan Kayser, Sr. Environmental Specialist, Ames Laboratory. (Various, January-February, 2009)
Mark Grootveld, Facility Services Group Manager, Ames Laboratory, (February 25, 2009)

Storage 3	Story
Name of Property	County
Kooser Drive	Ames
Address	City

Site Inventory Form

State Historical Society of Iowa
(November 2005)

State Inventory No. _____ ☒ New ☐ Supplemental
☐ Part of a district with known boundaries (enter inventory no.) _____
Relationship: ☐ Contributing ☐ Noncontributing
☐ Contributes to a potential district with yet unknown boundaries
National Register Status:(any that apply) ☐ Listed ☐ De-listed ☐ NHL ☐ DOE
9-Digit SHPO Review & Compliance (R&C) Number _____
☐ Non-Extant (enter year) _____

1. Name of Property

historic name Technical and Administrative Service Facility (TASF)

other names/site number

2. Location

street & number Pammel Drive
city or town Ames ☐ vicinity, county Story
Legal Description: (If Rural) Township Name Township No. Range No. Section Quarter of Quarter
Washington 83N 24W 04 __ __
(If Urban) Subdivision _____ Block(s) _____ Lot(s) _____

3. State/Federal Agency Certification [*Skip this Section*]

4. National Park Service Certification [*Skip this Section*]

5. Classification

Category of Property (Check only one box)
☒ building(s)
☐ district
☐ site
☐ structure
☐ object

Number of Resources within Property

If Non-Eligible Property Enter number of:		*If Eligible Property, enter number of:* Contributing	Noncontributing	
1	buildings	__	__	buildings
__	sites	__	__	sites
__	structures	__	__	structures
__	objects	__	__	objects
1	Total	__	__	Total

Name of related project report or multiple property study (Enter "N/A" if the property is not part of a multiple property examination).
Title *Historical Architectural Data Base Number*
N/A _____

6. Function or Use

Historic Functions (Enter categories from instructions)
05B03 EDUCATION; offices
_____
_____

Current Functions (Enter categories from instructions)
05B03 EDUCATION; offices
_____
_____

7. Description

Architectural Classification (Enter categories from instructions)
POST MODERN
_____
_____
_____

Materials (Enter categories from instructions)
foundation 10B CONCRETE; poured
walls (visible material) 03 BRICK
roof _____
other _____

Narrative Description (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" representing your opinion of eligibility after applying relevant National Register criteria)

☐ Yes ☒ No ☐ More Research Recommended	A	Property is associated with significant events.
☐ Yes ☒ No ☐ More Research Recommended	B	Property is associated with the lives of significant persons.
☐ Yes ☒ No ☐ More Research Recommended	C	Property has distinctive architectural characteristics.
☐ Yes ☒ No ☐ More Research Recommended	D	Property yields significant information in archaeology or history.

County Story Address Pammel Drive Site Number
City Ames District Number

Criteria Considerations

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B Removed from its original location.
- ☐ C A birthplace or grave.
- ☐ D A cemetery
- ☐ E A reconstructed building, object, or structure.
- ☐ F A commemorative property.
- ☐ G Less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

_____

_____

Significant Dates

Construction date

1995 ☐ check if circa or estimated date

Other dates, including renovation

_____

Significant Person

(Complete if National Register Criterion B is marked above)

_____

_____

Architect/Builder

Architect

Rudi/Lee/Dreyer & Associates

Builder

_____

Narrative Statement of Significance (☒ SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED)

9. Major Bibliographical References

Bibliography ☐ See continuation sheet for citations of the books, articles, and other sources used in preparing this form

10. Geographic Data

UTM References *(OPTIONAL)*

	Zone	*Easting*	*Northing*		*Zone*	*Easting*	*Northing*
1	15	446340	4653297	2	__	_____	_____
3	__	_____	_____	4	__	_____	_____

☐ See continuation sheet for additional UTM references or comments

11. Form Prepared By

name/title Alexa McDowell, Architectural Historian
organization AKAY Consulting date 02-16-09
street & number 1226 6th Street telephone 515-491-5432
city or town Boone state IA zip code 50036

ADDITIONAL DOCUMENTATION **(Submit the following items with the completed form)**

FOR ALL PROPERTIES

1. ***Map:*** showing the property's location in a town/city or township.
2. ***Site plan:*** showing position of buildings and structures on the site in relation to public road(s).
3. ***Photographs:*** representative black and white photos. If the photos are taken as part of a survey for which the Society is to be curator of the negatives or color slides, a photo/catalog sheet needs to be included with the negatives/slides and the following needs to be provided below on this particular inventory site:

   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____
   Roll/slide sheet # _____ Frame/slot # _____ Date Taken _____

   ☐ See continuation sheet or attached *photo & slide catalog sheet* for list of photo roll or slide entries.
   ☐ Photos/illustrations without negatives are also in this site inventory file.

FOR CERTAIN KINDS OF PROPERTIES, INCLUDE THE FOLLOWING AS WELL

1. ***Farmstead & District:*** (List of structures and buildings, known or estimated year built, and contributing or noncontributing status)
2. ***Barn:***
   a. A sketch of the frame/truss configuration in the form of drawing a typical middle bent of the barn.
   b. A photograph of the loft showing the frame configuration along one side.
   c. A sketch floor plan of the interior space arrangements along with the barn's exterior dimensions in feet.

State Historic Preservation Office (SHPO) Use Only Below This Line

Concur with above survey opinion on National Register eligibility: ☐ *Yes* ☐ *No* ☐ *More Research Recommended*
☐ *This is a locally designated property or part of a locally designated district.*

Comments: _____

Evaluated by (name/title): _____ *Date:* _____

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

2. Location, cont'd.

Iowa State University Campus, Ames, Story County, Iowa. TASF is located just south of Pammel Drive, on a narrow lot between Spedding Hall on the north and Gilman Hall on the south.

5. Classification, cont'd.

The Technical and Administrative Services Facililty (TASF) is considered a building and counts as one resource.

7. Description

Site Description

TASF is located in the north section of the Iowa State University campus. The building is sited on a narrow parcel of land situated between Spedding and Gilman Halls; TASF is attached to Spedding Hall on the north and Gilman Hall on the south. The building's façade faces east and access to the building is gained from a university parking lot on that side of the building.

Property Description

The site chosen for the 1995 administrative services building clearly dictated many of the choices made regarding its design. The relatively narrow site required an elongated building, with enough floors to provide the necessary office space. The building's connection to existing buildings on the north and the south required a coordination of floor heights (which would have influenced construction methods and the building's floor plan) and, due to a lack of windows on two elevations, the use of skylights to enhance interior lighting. In addition, the traditional stylistic influence found in both Spedding and Gilman created a visual backdrop for an architect aiming to design a building that, while set amidst and attached to existing buildings, would stand on its own.

The architect's rendering found on page 23 emphasizes that design, which played on the rectangular form – seen in the gridded windows and wall surfaces and in the recessing planes of the façade – set against the curving line on the south end of the façade. The use of the traditional red brick visually connects TASF to the earlier buildings to which it is attached, while utilization of the more "modern" concrete sets it apart. The introduction of simple, unfluted columns (traditionally, a classic device) enriches that interplay, with a net result of a complex and very "modern" building that holds it own against the traditional buildings that surround it.

Integrity Considerations

TASF is a well-maintained building, which retains its original form and construction materials. No major alterations have been made to the original building. Because the building is not considered eligible for listing on the National Register of Historic Places, a thorough analysis of its integrity is not required at this time.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

7. Description, cont'd.

Property History

The history of the Ames Laboratory begins soon after the 1939 discovery of nuclear fission. With that discovery, the United States government became interested in focusing a national research effort on the development of nuclear energy. As part of that effort, Frank H. Spedding was called upon to organize and direct a research and development program that would work in tandem with the Manhattan Project's physics program. Spedding, who was a specialist in the chemistry of rare earth metals and thus well suited to the assignment, was head of the physical chemistry department as what was then Iowa State College.

Along with other university and industrial labs across the country, the group at Ames began experimenting with better ways of producing uranium. Harley Wilhelm, a metallurgist with the Ames group, headed the team that developed a process for producing large ingots of high-grade uranium at a substantially reduced cost. The Ames group produced one-third of the uranium used in the "first successful self-sustaining chain reaction initiating the controlled release of nuclear energy."

Having proved that a chain reaction could be self-sustained and controlled, the demand for pure uranium rose dramatically and the Ames group worked to help meet that demand. The work involved continual refinement of the enrichment process, including both the melting and casting of uranium; the process they developed remains in use today. In total, the Ames group produced more than 2 million pounds of uranium for the Manhattan Project, playing a significant role in the outcome of World War II.

The Atomic Energy Commission (AEC) officially established the Ames Laboratory on May 17, 1947. The Lab's purpose was "… to build up and maintain a strong group of scientists working in the fundamental sciences." At the October 1960 dedication of the Metals Development building, John A. McCone, Chairman of the U.S. Atomic Energy Commission was asked why the AEC chose Ames to fulfill the Ames Laboratory contract and he responded that "… laboratories of this type are the lengthening shadow of the individual who has the unique and unusual capacity to search into the mysteries of the problems and also to attract as a magnet, men of dedication and skill to work with him. Many years ago, long before I had anything to do with this, the Office of Scientific Research found in Professor Spedding that man. That is why this laboratory is in Ames."

But long before the construction of Metals Development came the Lab's first building, the Metallurgy Building (later Wilhelm Hall), which was occupied in 1948. The Research Laboratory (aka Research Building and, later, Spedding Hall) was constructed and occupied by 1950. This pair became the physical center of the Ames Laboratory, with additional office and laboratory space located in the Institute for Atomic Research (also built in 1947-48 and now known as the Office and Laboratory Building) and Gilman Hall. Various secondary structures, such as Mechanical Maintenance, the Maintenance Shop, Records Storage, and the Warehouse were added from the late 1940s through the

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

7. Description, cont'd.

1990s. These buildings were constructed to provide support services and general storage space to the research and development efforts conducted in the facility's primary structures. The Technical and Administrative Services Facility was the most recent addition to the Lab's primary buildings.

Design plans for TASF were completed in 1993 by the Des Moines architectural firm of Rudi/Lee/Dreyer & Associates. In late summer of the following year the Lab's in-house publication, the *Insider,* reported that the move into the new building would begin in September. The official occupation is recorded as 1995. The 6-million-dollar project resulted in the construction of a four-story, reinforced concrete and brick building. The 42,400 square feet of space was designed to provide centralized office and support space for the Ames Laboratory. The new office space allowed those offices to be removed from their locations in Spedding Hall, freeing space in that building for research and creating a generally efficient use of space throughout the Ames Laboratory. The building was designed to connect to Spedding Hall at all levels and with Gilman on the north. The construction of the new building also provided a "front door" to the Lab's facilities and made public access more manageable.

In the newly constructed building, the offices for Environment, Safety & Health, Occupational Medicine, and Plant Protection were located on the ground floor, along with an eating area. The first floor housed Graphic Communication Services, Personnel, Public Affairs and Information and Travel offices. The offices of Education Budget, Purchasing, and Accounting were found on the second floor and the third floor accommodated the offices of Auditor, Information Services, Assurance and Assessment, and Director. Although the organization of the Ames Laboratory administration has evolved since the opening of TASF, the building continues to provide space related to those original departments.

Although the Ames Laboratory's early history may be most intimately linked to the uranium program of the war years, the facility's research broadened over the ensuring years and became no less significant in the scientific world. Under the continued influence of Frank Spedding and Harley Wilhelm, the scientists of the Ames Lab directed their efforts in a variety of areas including the development of Iowa's first nuclear reactor, the Iowa State Teaching Reactor, which "went critical" on October 19, 1959.

Today, Ames' mission focus is on materials science, engineering, analytical instrumentation and chemical sciences that provides expertise to the Department of Energy (DOE) laboratory system in the areas of energy and environmental improvement. Ames' core capabilities are in Condensed Matter Physics and Materials Science, Chemical and Molecular Science and Applied Materials Science and Engineering; included in these is the computational support needed to carry out its mission. Ames operates the Materials Preparation Center (MPC), an Office of Science Specialized Research Center, which provides capabilities in preparation, purification, fabrication and characterization of materials in support of R&D programs throughout the world. Ames also collaborates with the DOE's applied energy technology, fossil energy and nonproliferation programs.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

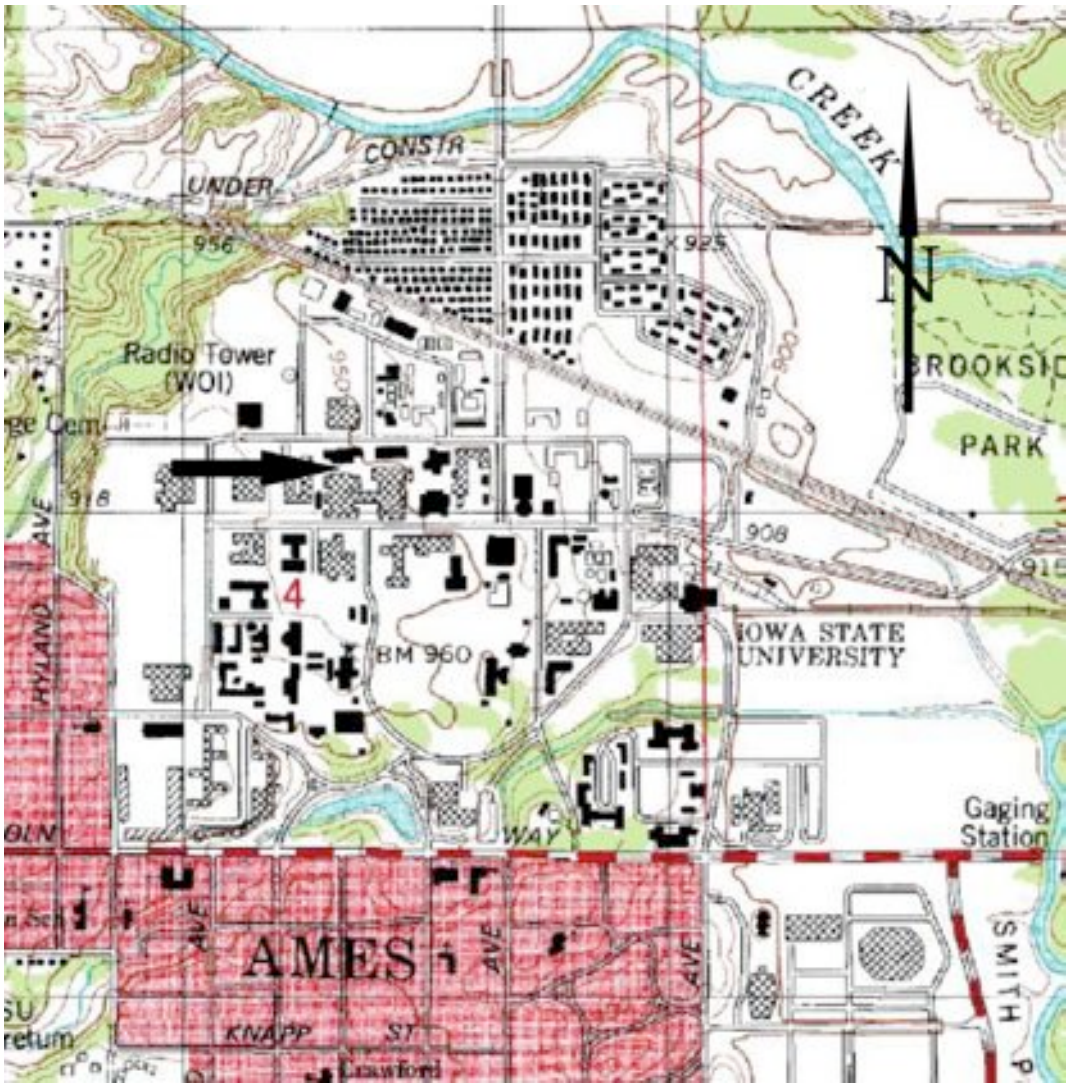
8. Statement of Significance

Because TASF was constructed less that fifty years ago (the window established by the National Park Service), it is not considered eligible for listing on the National Register of Historic Places. The potential for significance should be revisited once the property reaches that designated threshold (2045 or prior.) Given that the building is architect designed and due to its association with the Ames Laboratory, the building will likely achieve a level of significance that would mark it for consideration as a National Register eligible resource.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Maps

USGS 7.5 MINUTE TOPOGRAPHIC MAP – AMES QUAD (1993)



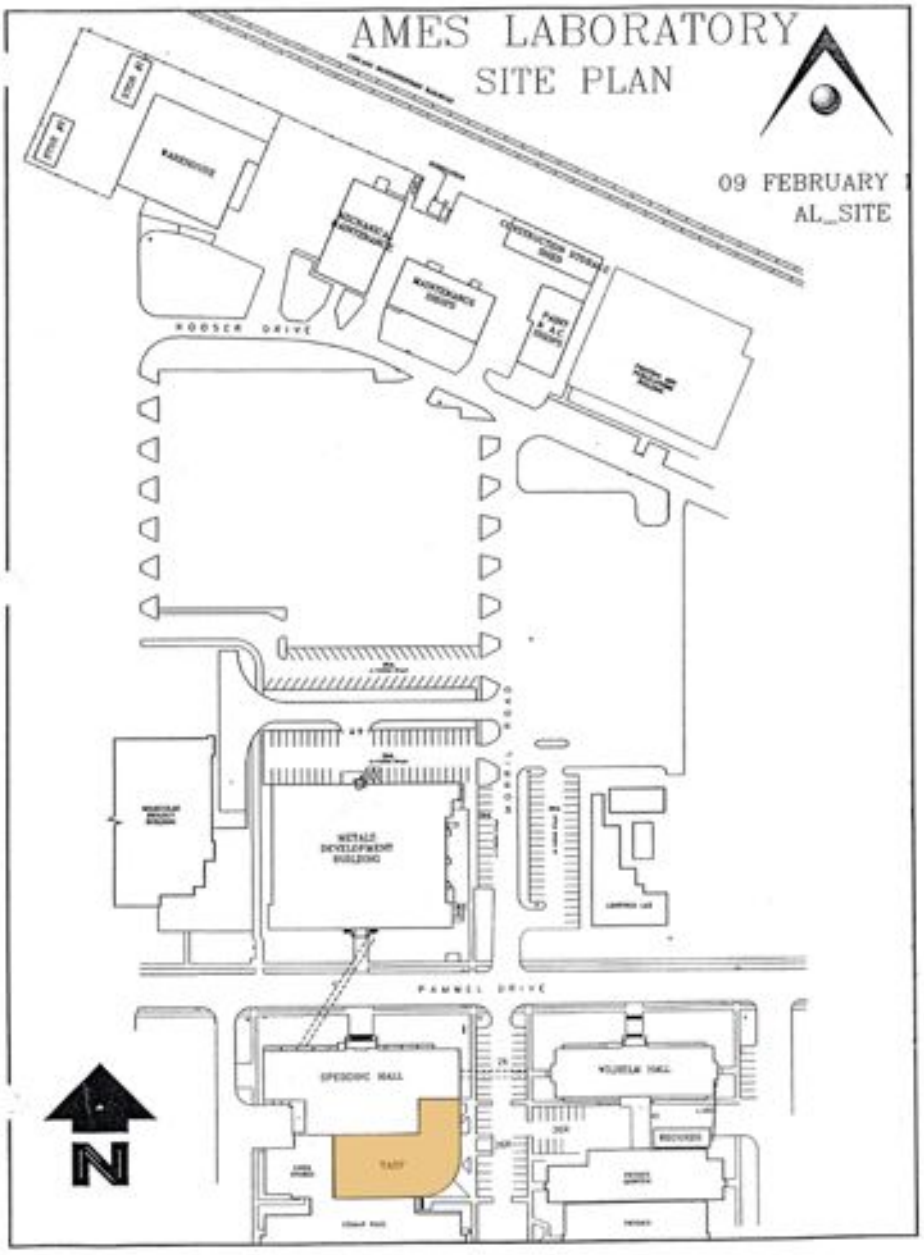
(MAP SOURCE: www.terraserver-usa.com)

The location of the Technical and Administrative Services Facility (which post-dates this map) is indicated by the arrow.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Maps

SITE MAP



(MAP SOURCE: Ames Laboratory Files – Facilities Services – ca. 2007)

The orange shading indicates the location of TASF.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation - Photographs

View of TASF, looking southwest across Pammel Drive. The building, sandwiched as it is between the classically influenced Spedding Hall on the north (right) and Gilman Hall on the south (left), is easily distinguished by its contemporary façade.

(All images by AKAY Consulting – January 22, 2009 or February 25, 2009)

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation - Photographs

View of the primary elevation (east) of TASF. Note that the building adjoins Spedding Hall, seen here at right.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation - Photographs

Detail of the connection of TASF to Spedding Hall.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the ground floor, main corridor looking to the west from the primary entrance.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the ground floor office space.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the first floor main corridor, looking west from the primary entrance. The hall configuration and finish materials of this corridor are representative of all floors. Note the display cases holding images and awards for the Laboratory and its chief scientists, Frank Spedding and Harley Wilhelm.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the second floor meeting space located in the northeast corner of the building.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Photographs

View of the primary corridor of the third floor. The second and third floors are accessed via an interior staircase only; this view is looking west from near the staircase doorway in the northeast corner of the building. A skylight, creating a lighter more open space, lights the third floor corridor. The railing seen here marks a cut-away to the lower floors, transferring light to the interior spaces below. This use of natural light was particularly important in TASF because was it constructed between two existing buildings, resulting in no windows on the north or south elevations.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

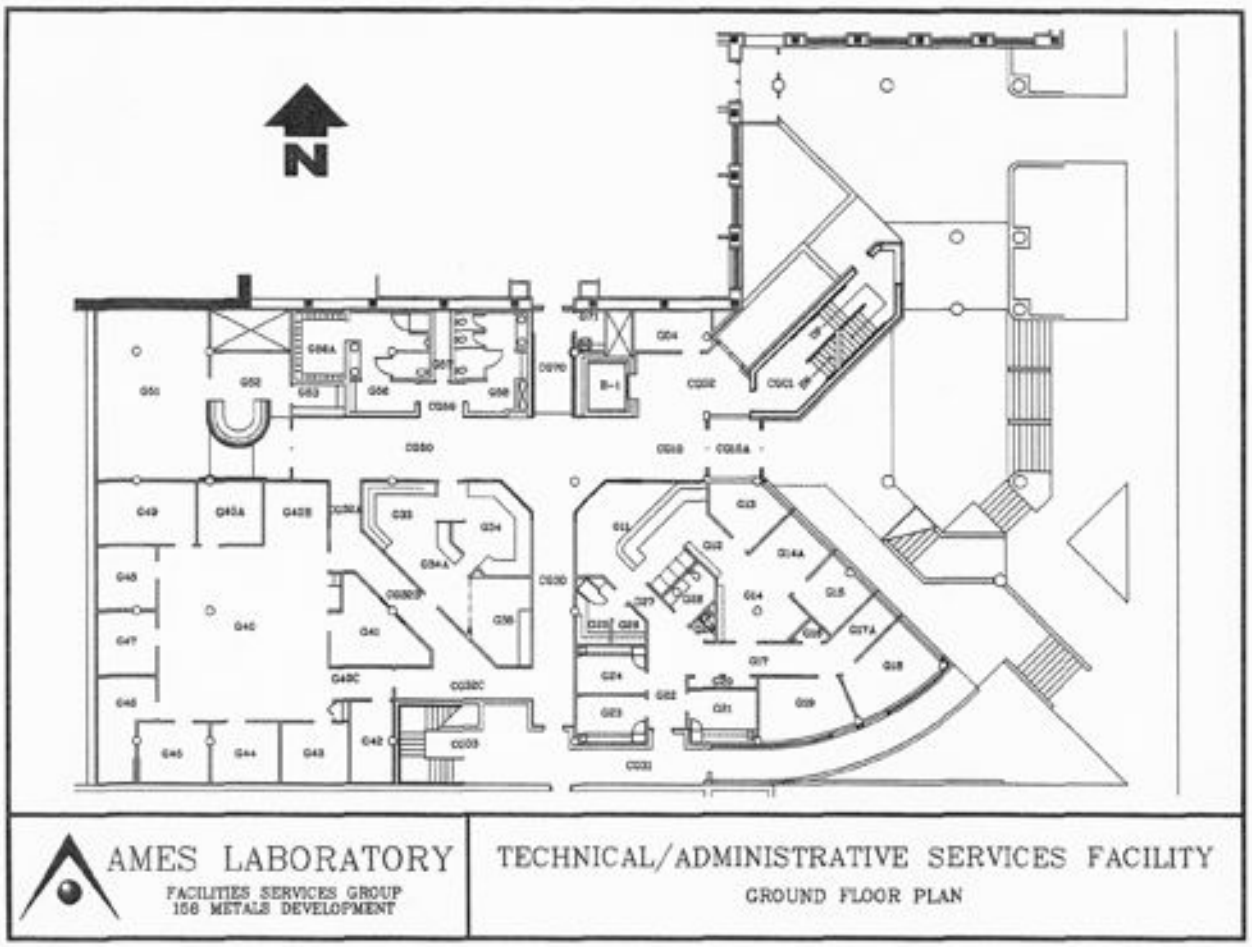
11. Additional Documentation – Photographs

View of the intersecting hallway on the third floor, with the cut-away and skylight in view.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Floor Plans

Ground Floor – ca. 2007

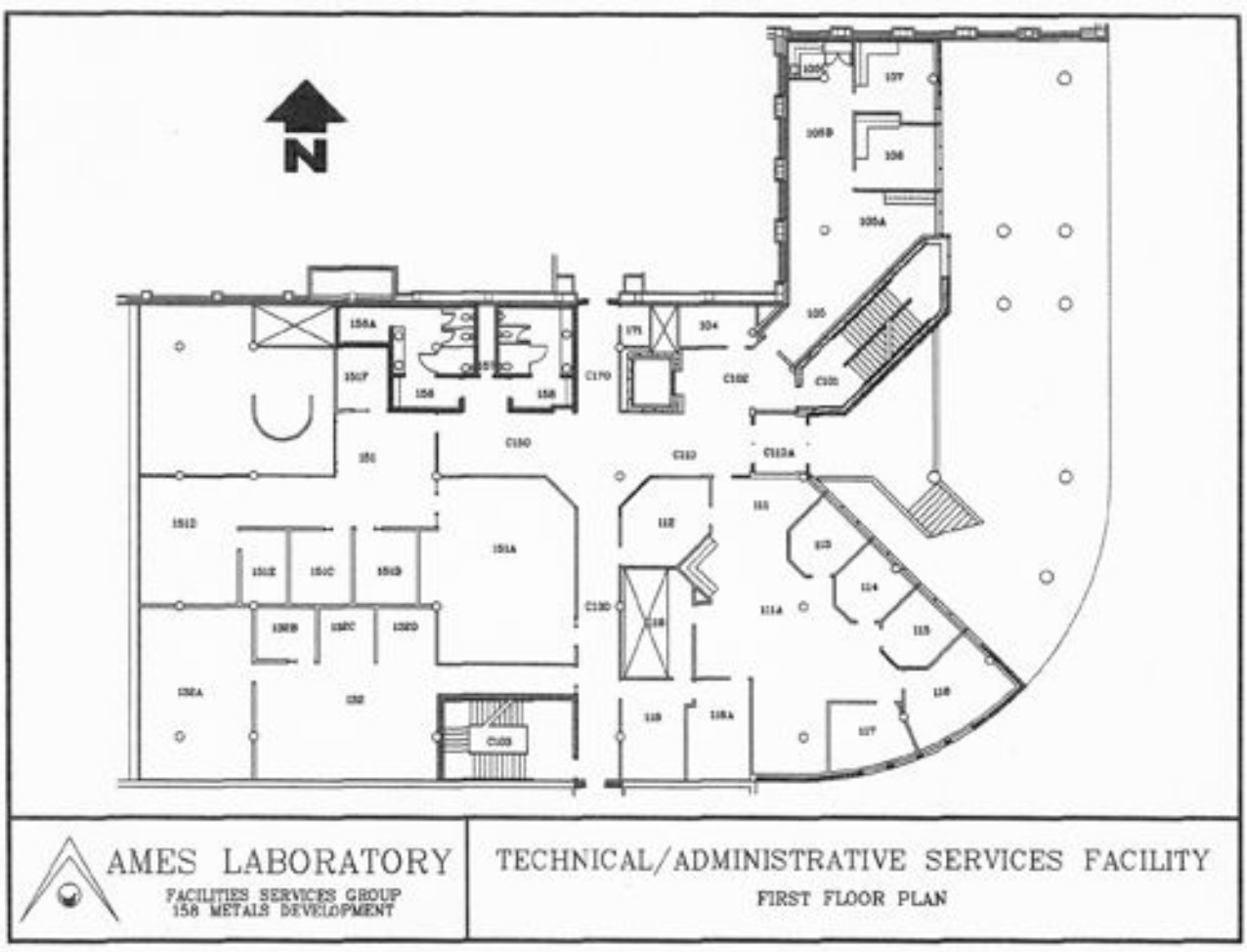


(MAP SOURCE: Ames Laboratory Files – Facilities Services – ca. 2007)

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Floor Plans

First Floor – ca. 2007

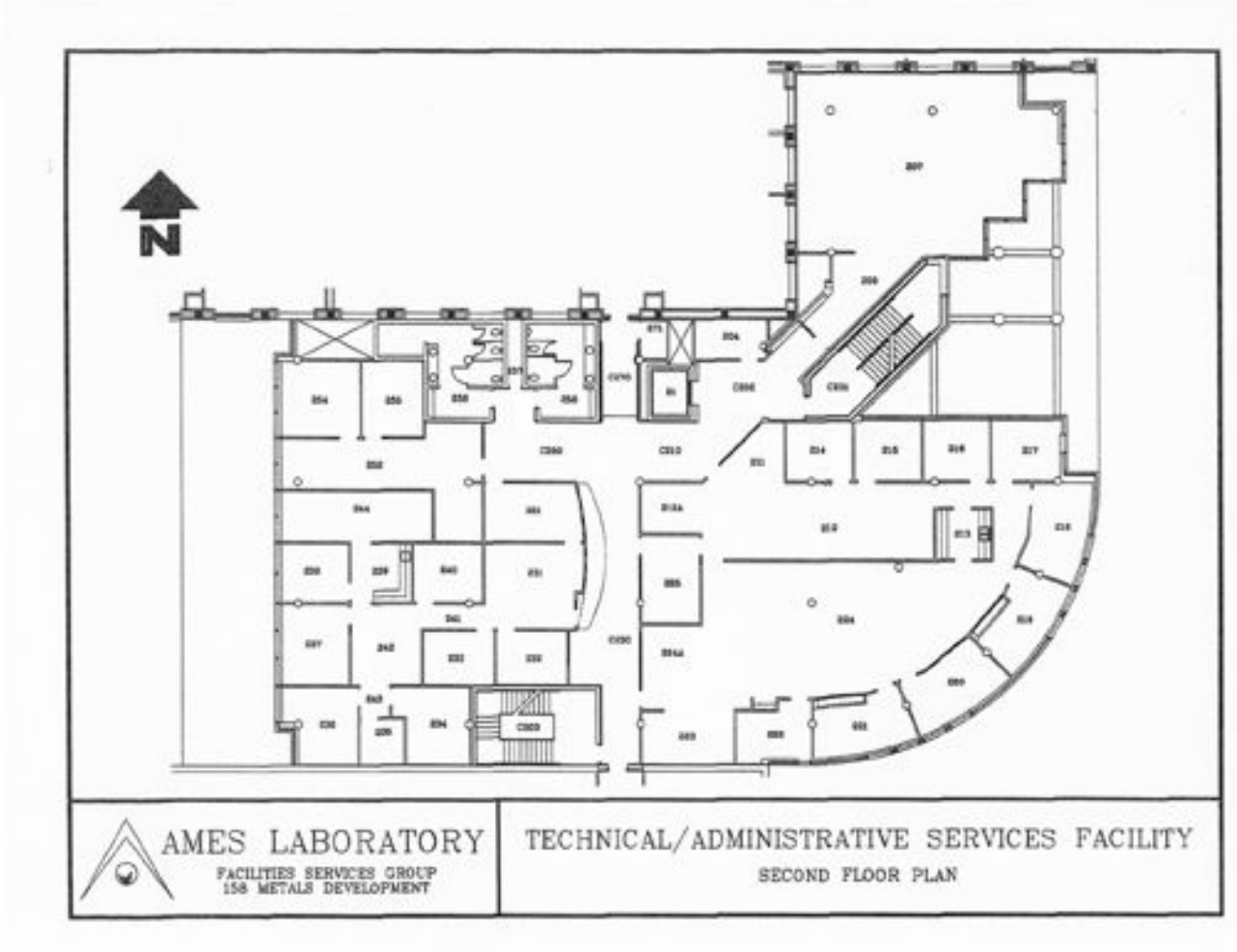


(MAP SOURCE: Ames Laboratory Files – Facilities Services – ca. 2007)

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Floor Plans

Second Floor – ca. 2007

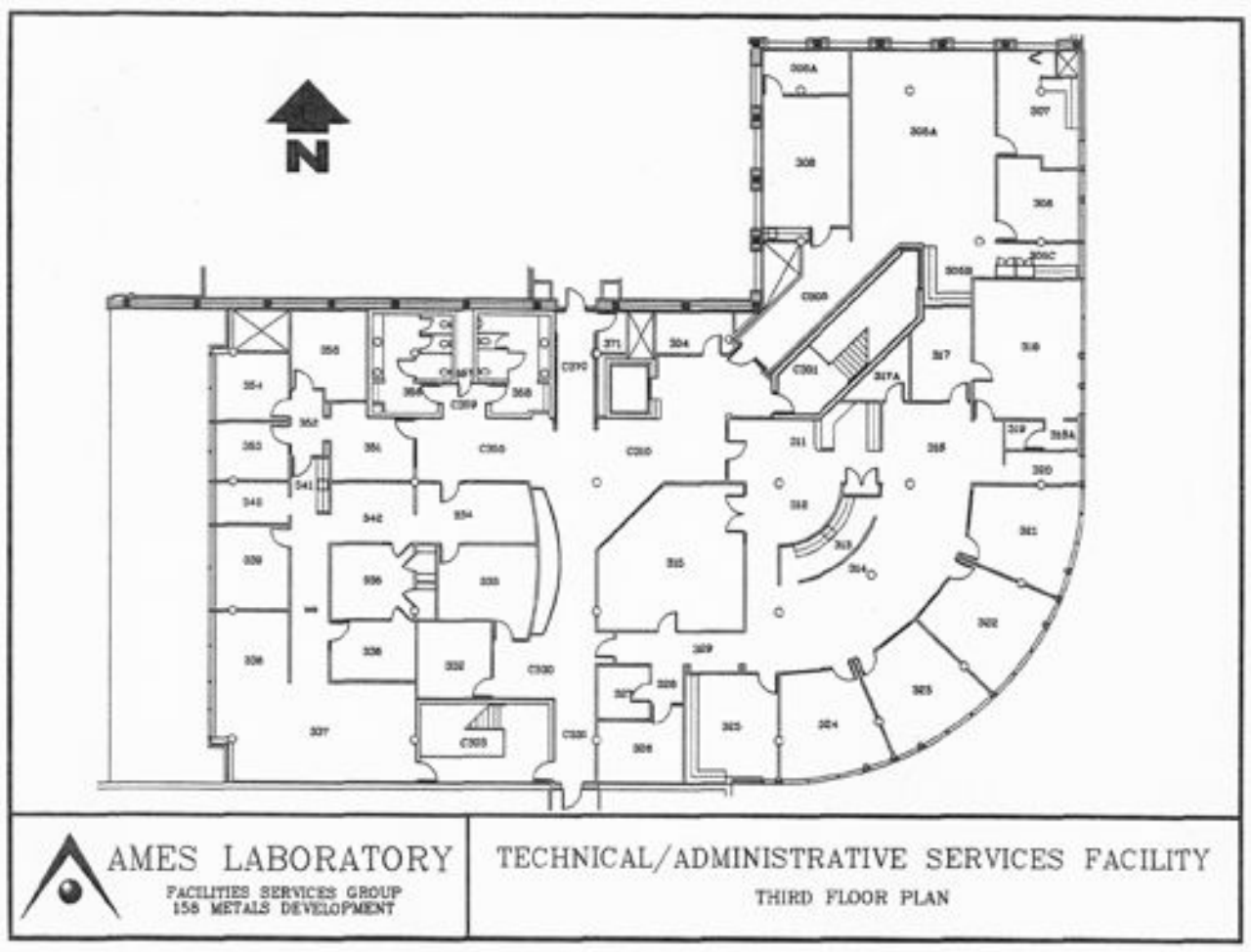


(MAP SOURCE: Ames Laboratory Files – Facilities Services – ca. 2007)

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Floor Plans

Third Floor – ca. 2007

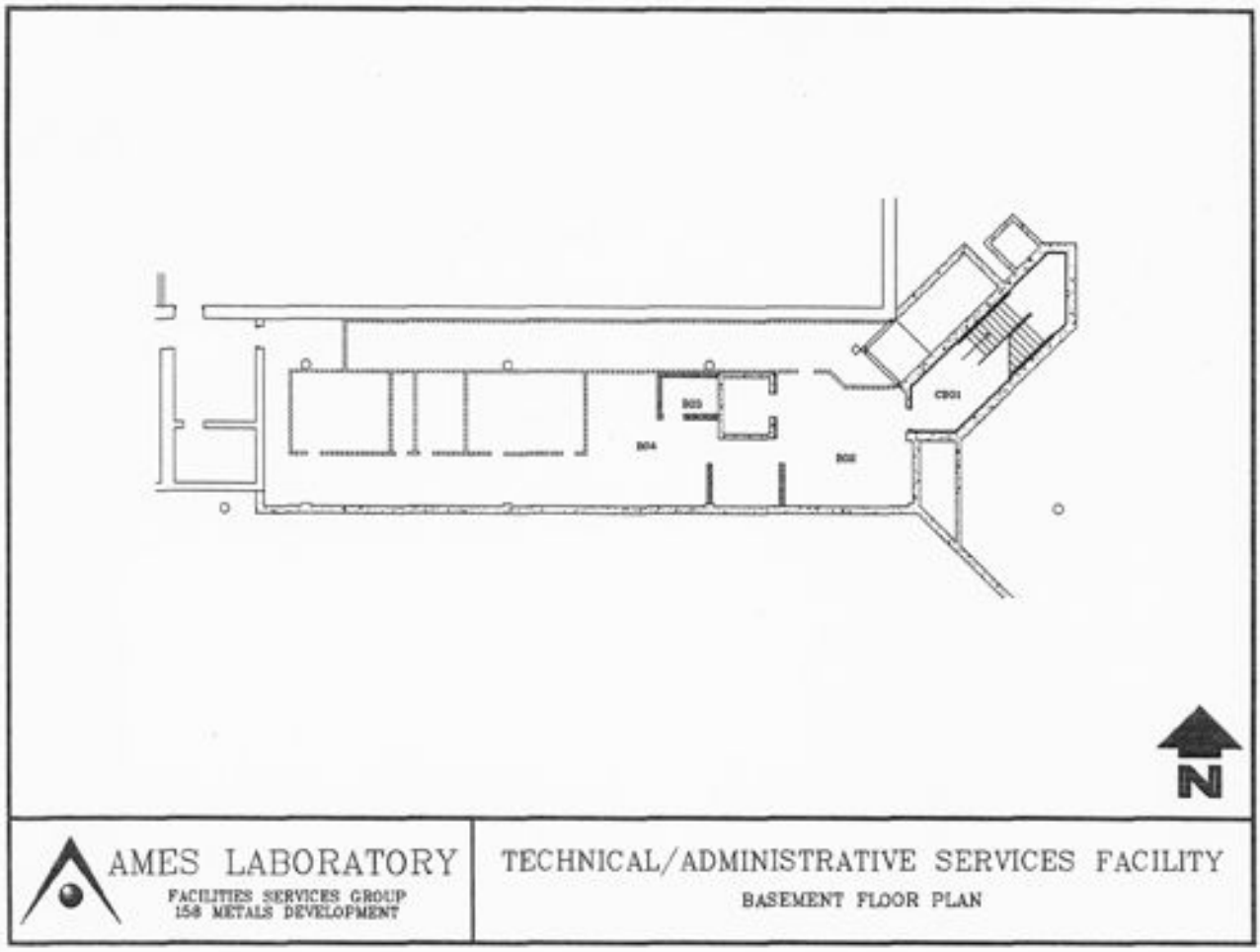


(MAP SOURCE: Ames Laboratory Files – Facilities Services – ca. 2007)

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Floor Plans

Basement – ca. 2007

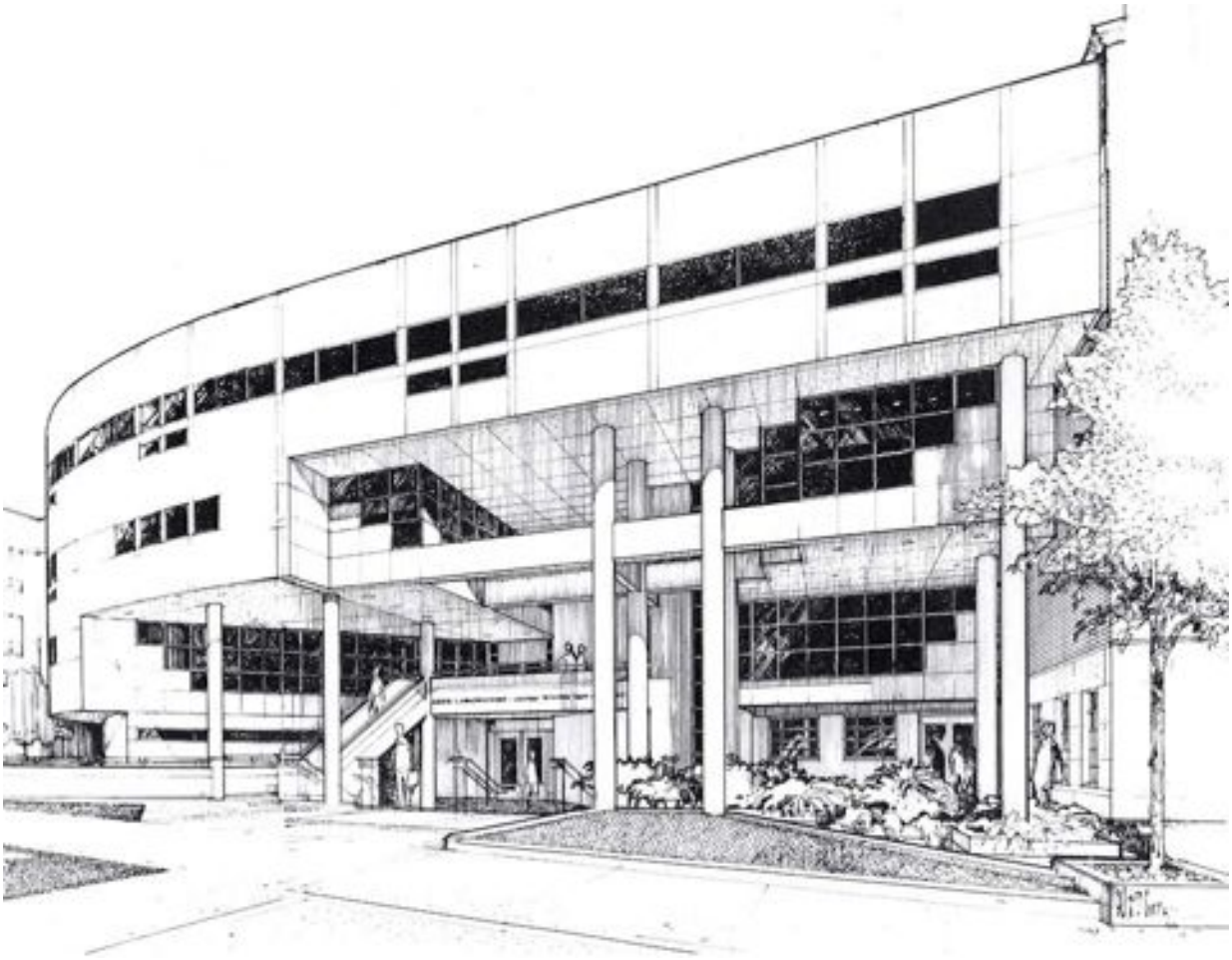


(MAP SOURCE: Ames Laboratory Files – Facilities Services – ca. 2007)

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Historic Images

ARCHITECTS' RENDERING – ca.1993



(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

This rendering emphasizes the architect's design, which played on the rectangular form – seen in the gridded windows and wall surfaces and in the recessing planes of the façade – set against the curving line on the south end of the façade. The introduction of simple, unfluted columns enriches that interplay, with a net result of a complex and very "modern" building that holds it own against the traditional buildings that surround it.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Historic Images

SITE EXCAVATION – ca.1993

(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

This image, looking west from the roof of Wilhelm Hall, documents the excavation of the site between Spedding Hall (right) and Gilman Hall (left) upon which TASF was constructed.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Historic Images

CONSTRUCTION IMAGE – ca. 1994

(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

This image documents the construction of TASF as it is well under way.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

11. Additional Documentation – Historic Images

EXTERIOR IMAGE – ca.1995

(IMAGE SOURCE: Ames Laboratory Files – Office of Public Affairs)

TASF shortly after its completion. Personnel began moving into the space from their former offices (many relocated from Spedding Hall) in the late fall of 1994, but the building is considered as being fully in service in 1995.

Technical and Administrative Service Facility (TASF)	Story
Name of Property	County
Pammel Drive	Ames
Address	City

9. Major Bibliographic References

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Site Maps – Construction Dates – *Ames Lab Insider* (various issues) – Historic Images

Ames Lab Files – Facility Services Office
Site Maps – Current Floor Plans – Historic Floor Plans

Day, H. Summerfield. *The Iowa State University Campus and Its Buildings, 1859-1979.* Ames: Iowa State University, 1980.

Internet Resources

Source for USGS Topographic maps	www.terraserver.com www.topozone.com
Legal Description	www.iowaassessors.com

Iowa State Special Collections, Parks Library

Oral Informants. Dan Kayser, Sr. Environmental Specialist, Ames Laboratory. (Various, January-February, 2009)
Mark Grootveld, Facility Services Group Manager, Ames Laboratory, (February 25, 2009)

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